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Upper Missouri River Breaks National Monument

DRAFT

Resource Management Plan and Environmental Impact Statement

September 2005



Lewistown Field Office



BLM

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based on the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation; rangelands; timber; minerals; watershed; fish and wildlife; wilderness; air; and scenic, scientific, and cultural values.

BLM/MT/PL-05/014+1610



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Lewistown Field Office

Upper Missouri River Breaks National Monument
920 NE Main Street, P.O. Box 1160
Lewistown, Montana 59457-1160



1610.RMP (050)

September 2005

Dear Reader:

Enclosed for your review and comment is the Draft Resource Management Plan and Environmental Impact Statement (Draft RMP/EIS) for the Upper Missouri River Breaks National Monument. The Draft RMP/EIS considers and analyzes six alternatives that address future management of approximately 375,000 acres of BLM land in the Monument, with Alternative F identified as the agency's preferred alternative. While a preferred alternative has been identified, a final decision has not been made. The final decision, which will be documented in a Record of Decision, will be made only after consideration of the comments received on the Draft RMP/EIS and after a Proposed RMP/Final EIS has been released. The Draft RMP/EIS is available on the BLM website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm.

Your review and comments are needed at this time to ensure that your concerns are adequately addressed in the planning process. The public review period for the Draft RMP/EIS is 90 calendar days and will begin with publication of the Notice of Availability in the Federal Register by the Environmental Protection Agency (EPA). Additional information on public meeting dates and times to discuss the plan and provide comments will be forthcoming in news releases after publication of the EPA notice. Written comments should be sent to the Monument Manager, 920 NE Main Street, P.O. Box 1160, Lewistown, MT 59457. All comments will be fully considered and evaluated in the preparation of the Proposed RMP and Final EIS, and all substantive comments will be addressed.

Comments will be most useful if they are specific, mention particular pages of the document where appropriate, and address one or more of the following:

- Identify inaccuracies or discrepancies in information
- Identify new information that would have a bearing on the analysis
- Identify new impacts, alternatives, or mitigation measures
- Make suggestions for improving management direction

Comments, including name and addresses of respondents, will be available for public review at the Lewistown Field Office during regular business hours between 7:45 a.m. and 4:30 p.m., Monday through Friday, except holidays, and may be published as part of the Final EIS. You may request confidentiality if you are commenting as an individual, but you must state this prominently at the beginning of your written comments. Such requests will be honored to the extent allowed by law. Anonymous comments will not be considered. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be available for public inspection in their entirety.

We appreciate your help in this planning effort and look forward to your continued interest and participation. For additional information or clarification regarding this document or the planning process, please contact Jerry Majerus, Project Manager, at (406) 538-1924.

Sincerely,

Gary E. Slagel
Monument Manager

DRAFT

UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Lewistown Field Office
Lewistown, Montana

SEPTEMBER 2005

Draft
Upper Missouri River Breaks National Monument
Resource Management Plan
and
Environmental Impact Statement

1. Responsible Agencies

Bureau of Land Management (Lead Agency)

State of Montana (Cooperating Agency)

Blaine County, Montana (Cooperating Agency)

Chouteau County, Montana (Cooperating Agency)

Fergus County, Montana (Cooperating Agency)

Phillips County, Montana (Cooperating Agency)

2. Draft (X) Final ()

3. Type of Action: Administrative (X) Legislative ()

4. Abstract: This Draft Resource Management Plan and Environmental Impact Statement describes and analyzes six alternatives for managing the Upper Missouri River Breaks National Monument located in portions of Blaine, Chouteau, Fergus, and Phillips Counties in northcentral Montana. The Monument includes about 375,000 acres of public land administered by the Bureau of Land Management's Lewistown Field Office. The six alternatives are: Alternative A (current management or the "no action" alternative), Alternatives B, C, D, E, and Alternative F (the preferred alternative). The alternatives address the following four main areas: health of the land and fire; visitor use, services and infrastructure; natural gas exploration and development; and access and transportation.

5. Comments on the Draft Resource Management Plan and Environmental Impact Statement must be received within 90 days from publication of the Notice of Availability by the Environmental Protection Agency in the Federal Register. The close of the comment period will be announced in a news release, newsletter, and on the Bureau of Land Management website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm.

6. For further information, contact:

Jerry Majerus, Project Manager
Bureau of Land Management
Lewistown Field Office
P.O. Box 1160
Lewistown, MT 59457
(406) 538-1924

Acronyms

ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
ANILCA	Alaska National Interest Lands Conservation Act
APD	Application for Permit to Drill
API	American Petroleum Institute
APHIS	Annual Plant and Health Inspection Service
APLIC	Avian Power Line Interaction Committee
AUM	Animal Unit Month
BACT	Best Available Control Technology
BCF	Billion Cubic Feet
BLM	Bureau of Land Management
BMP	Best Management Practice
BOR	Bureau of Reclamation
CA	Communitization Agreement
CESU	Cooperative Ecosystem Studies Unit
CFR	Code of Federal Regulations
CMR	Charles M. Russell National Wildlife Refuge
CRP	Conservation Reserve Program
DEQ	Montana Department of Environmental Quality
DFC	Desired Future Condition
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FIMMS	Facilities Inventory and Maintenance Management System
FLPMA	Federal Land Policy and Management Act
FLREA	Federal Lands Recreation Enhancement Act
FMU	Fire Management Unit
FRCC	Fire Regime and Condition Class
LAC	Limits of Acceptable Change
LWCF	Land and Water Conservation Fund
MFWP	Montana Fish, Wildlife & Parks
MLA	Mineral Leasing Act
MLRA	Major Land Resource Areas
MOA	Military Operations Area
MWA	Montana Wilderness Association
NASIS	National Soils Information System
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIA	Notice of Intent to Abandon
NOS	Notice of Staking
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWSRS	National Wild and Scenic Rivers System
ORVs	Outstandingly Remarkable Values
PFC	Proper Functioning Condition
PL	Public Law
PSD	Prevention of Significant Deterioration
R and PP	Recreation and Public Purposes Act
RAC	Resource Advisory Council
RFD	Reasonably Foreseeable Development
RMA	Recreation Management Area

RMP	Resource Management Plan
ROW	Right-of-Way
SAR	Search and Rescue
SMA	Surface Management Agency
SMU	Soil Mapping Unit
SMZ	Streamside Management Zone
SRA	Subsequent Report of Abandonment
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SSA	Soil Survey Area
SSURGO	Soil Survey Geographic
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
UMNWSR	Upper Missouri National Wild and Scenic River
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WEG	Wind Erodibility Group
WFSA	Wild Fire Situation Analysis
WSA	Wilderness Study Area
WSRA	Wild and Scenic Rivers Act
WUG	Western Utility Group

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Located at the Conclusion of Chapter 2

- Map A Visual Resource Management Classes (Preferred Alternative)
- Map B Fire Management Units
- Map C Recreation Management Areas (Preferred Alternative)
- Map D Public Access Needs

Located at the Conclusion of Chapter 3

- Map E Elk Distribution
- Map F Elk and Deer Winter Range
- Map G Antelope Crucial Winter Range
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- Map 1 Recreation (Preferred Alternative)
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Reader's Guide and Summary

Reader's Guide

The Upper Missouri River Breaks National Monument Draft Resource Management Plan and Environmental Impact Statement (Draft RMP/EIS) was prepared under the guidance of the Federal Land Policy and Management Act and the National Environmental Policy Act.

The Draft RMP/EIS is organized into five chapters and appendices. The five chapters detail the introduction, alternatives, affected environment, environmental consequences, and coordination. The appendices include supporting information for some of the topics discussed in Chapters 1 through 5, which would be too lengthy to include under a specific section.

Chapter 1: Introduction

This chapter contains background information on the planning process and sets the stage for the information that is presented in the rest of the document. There are 15 main sections in Chapter 1, beginning on page 1. They include:

- Background
- Purpose and Need
- Planning Area
- Collaboration
- Planning Process
- Scoping
- Issues Addressed
- Issues Considered but Not Further Analyzed
- Planning Criteria
- Related Plans
- Relationship to BLM Policies, Plans, and Programs
- Vision and Management Goals
- Development of Alternatives
- Draft Resource Management Plan
- Final Resource Management Plan

Chapter 2: Alternatives

This chapter describes the management alternatives for the Monument and is presented in six sections:

- General Description of Each Alternative
- Decisions Common to All Alternatives
- Current Management and Action Alternatives
- Alternatives Considered but Not Analyzed in Detail
- Comparison of Alternatives
- Comparison of Impacts

There are two main components of this chapter. One is the section on Decisions Common to All Alternatives, beginning on page 15, which includes existing decisions that will be carried forward into each alternative described further in the chapter.

The other main component is Current Management and Action Alternatives beginning on page 30, which provides a detailed description of the six alternatives. There are also two main tables associated with Chapter 2: a summary comparison of the alternatives (Table 2.38 on page 104) and a summary of the environmental consequences (Table 2.39 on page 126).

The information relating to issues, alternatives and impact analysis is organized into four broad categories throughout this document. This category format is introduced in Chapter 2 and used again primarily in Chapter 4. These categories are intended to group similar resource discussions and to provide another means of organizing the voluminous information in this document for the reader's convenience. The four categories are:

- The *Health of the Land and Fire* section includes management guidance that would apply to most resources and resource uses in the Monument and includes alternatives for fish and wildlife; vegetation; range improvements; visual resources; forest products; right-of-way corridors, avoidance areas and exclusion areas; land ownership adjustment; fire; and eligible wild and scenic rivers.
- The *Visitor Use, Services, and Infrastructure* section includes management guidance for recreation in the Monument. This section includes alternatives for recreation management areas; fees; gateway communities; research, collection, and special events; recreation in sensitive wildlife habitat; potential interpretive sites; special recreation use permits; opportunities for boaters; camping facilities; and motorized watercraft.
- The *Natural Gas Exploration and Development* section includes management guidance for the existing oil and gas leases in the Monument. This section includes alternatives for the West HiLine and non-West HiLine oil and gas leases which include timing, controlled surface use and no surface disturbance; and alternatives for seismic; drilling operations; production facilities and equipment; and reclamation.

- The *Access and Transportation* section includes management guidance for the transportation system in the Monument. This section includes alternatives for access; the BLM road system; and aviation.

Chapter 2 begins on page 13.

Chapter 3: Affected Environment

This chapter provides background information on the various resources administered by the BLM that could be affected by the alternatives described in Chapter 2. This chapter is organized by resource section and includes enough information to understand the effects of the alternatives.

Chapter 3 begins on page 139.

Chapter 4: Environmental Consequences

This chapter describes the environmental, social and economic consequences of implementing the alternatives presented in Chapter 2. The impact-related information in this chapter is organized by resource, then by category and alternative. Some resource sections do not address all the categories or topics covered in Chapter 2 but only those that would have an effect on that specific resource.

Chapter 4 begins on page 197.

Chapter 5: Consultation and Coordination

This chapter includes a description of the public involvement opportunities, coordination with other agencies including cooperating agencies, and consultation. This chapter also lists the agencies, organizations, and business receiving the document, and provides a brief introduction of the preparers of the Draft RMP/EIS.

Chapter 5 begins on page 343.

Appendices

The appendices are lettered and organized as they are referenced in the Draft RMP/EIS. Each appendix may contain several pieces of information related to the topic covered.

The appendices begin on page 375 and include:

- A Proclamation
- B Significant Objects
- C Scoping Issues
- D Issues Considered but Not Further Analyzed
- E Vision and Management Goals

- F Federal and Montana Ambient Air Quality Standards
- G Best Management Practices
- H Standards for Rangeland Health and Guidelines for Livestock Grazing Management
- I Wild and Scenic River Eligibility and Suitability Report
- J Standards and Indicators
- K Oil and Gas
- L Wildlife
- M Soil Survey Geographic (SSURGO)
- N Vegetation Species Common in Riparian Areas
- O Noxious/Invasive Plant Species at Recreation Sites
- P Rights-of-Way
- Q Grazing Allotments

Maps

The Draft RMP/EIS includes ten 11x17 foldout maps at the conclusion of Chapters 2 and 3 along with three larger foldout maps located in the back pocket. There are also several other maps referenced in the Draft RMP/EIS, which can be found on the following website: http://www.blm.gov/nhp/spotlight/state_info/planning.htm.

Summary

Purpose and Need

The Proclamation states the BLM will remain the managing agency for this Monument. This Draft RMP/EIS sets forth the vision, goals and management guidance for the objects for which the Monument was designated.

The Proclamation provides the basic management direction for this Monument and governs how the provisions of the Federal Land Policy and Management Act (FLPMA) will be applied to the Monument. FLPMA directs the BLM to manage public land on the basis of multiple use and “in a manner that will protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resources, and archaeological values.” The term multiple use, refers to the “harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment” (43 USC 1702). Multiple use involves managing an area for various benefits, recognizing that the establishment of land use priorities and exclusive uses in certain areas is necessary to ensure that multiple uses can occur harmoniously across a landscape.

This Draft RMP/EIS provides a comprehensive plan for managing the Monument and site-specific, detailed plans for managing transportation and natural gas leases in a

manner that protects the objects identified in the Proclamation, while recognizing valid existing rights. The Proclamation, FLPMA, National Environmental Policy Act (NEPA), Wild and Scenic Rivers Act, and other mandates provided the direction for preparing this Draft RMP/EIS.

The preliminary issues were identified in the Preparation Plan for the RMP. They were identified by the BLM and other agencies at meetings, and/or were suggested by individuals and groups by way of phone calls, emails, letters and past meetings concerning the proposed designation. They represented the BLM's expectations (prior to scoping) about what concerns or problems exist with current management. The preliminary issues were included in a June 2002 newsletter, and displayed during the scoping open houses in July and August 2002. They were then modified based on the scoping comments and expanded to include a new issue: economic and social conditions.

From data collection and analysis perspectives, some of these six issues overlap one another, and each contains a number of different sub-issues which address more specific uses and resources related to the topic.

How will human activities and uses be managed?

The Monument provides a variety of activities and uses. Recreational activities include motorized and non-motorized touring; upland game bird and big and small game hunting; backpacking; horseback riding; sightseeing; pleasure driving; river floating; motorized river boating; and the backcountry use of small fixed-wing aircraft on primitive landing strips. A subgroup of the Central Montana Resource Advisory Council (RAC) addressed visitor use recommendations for the river portion of the Monument. The designation of the Bear Paw Battlefield National Park in 2005, may result in increased use along the Nez Perce National Historic Trail. A new BLM interpretive center in Fort Benton, which is under construction and scheduled to open in 2006, will focus on Monument values and uses both on the Missouri River and in the uplands.

Commercial guides and outfitters, operating under special recreation permits from the BLM, provide services related to some recreational activities such as hunting and river floating. Increased visitation has led to increased demands for visitor services, requests for outfitter permits, requests for aerial tours of the Monument, and a higher demand for emergency services such as search and rescue.

A number of non-recreational uses also occur in the Monument, including rights-of-way for roads, utility lines and communication sites, livestock grazing, etc. All of these activities have an effect on the area environment and on local communities surrounding the Monument. Careful

management of these activities is crucial to protecting the Monument resources.

In some instances, such as oil and gas leasing within the Monument, valid existing rights are in effect and must be recognized in the RMP. In March 2000, the Montana Wilderness Association filed suit challenging BLM's issuance of three of these leases, alleging the BLM did not fully comply with NEPA, the Endangered Species Act, and the National Historic Preservation Act. In March 2004, the Montana Federal District Court ruled in favor of the plaintiffs and ordered the BLM to prepare an EIS for the oil and gas leasing program that covers the three leases. The leases involved in the suit, as well as nine others in the Monument, were based on the BLM's 1988 West HiLine RMP. In light of the court's ruling, the BLM believes all 12 leases in the Monument and based on the West HiLine RMP should be analyzed in this Monument RMP. This RMP will consider the current stipulations that apply to the 12 leases issued under the West HiLine RMP, and the conditions of approval or mitigating measures that should be applied to surface occupancy and surface-disturbing activities associated with all 43 oil and gas leases in the Monument, which cover about 42,000 acres.

What facilities and infrastructure are appropriate to provide visitor interpretation and administration of the Monument?

The planning area is characterized as a predominantly natural environment with few facilities, other than along the Upper Missouri National Wild and Scenic River (UMNWSR), for the comfort and convenience of visitors. Currently, the BLM has a visitor contact station and an office located in Fort Benton, and a variety of recreation sites along the UMNWSR. Additional facilities may be needed for visitor safety and information, and to address human sanitation, vehicle use and other resource uses and impacts.

How will the BLM manage resource uses and protect the biological, historical, cultural, and visual values of the Monument?

Various ways of protecting resources include enforcing existing laws and regulations, educating visitors, managing access, setting management and research priorities, suppressing wildfires and managing fuels, restoring degraded ecological conditions, or some combination of these approaches.

Some of the Monument's major resources for which management decisions must be made by the BLM include cultural, recreation, riparian communities, vegetation and water resources, as well as biodiversity and wildlife habitat.

How will Monument management be integrated with other agency and community plans?

The BLM has a strong commitment to work with other agencies and communities in managing the Monument. Coordination with state agencies that have jurisdiction over resources within the Monument is essential for effective management. These agencies include Montana Fish, Wildlife & Parks, and the Montana Department of Natural Resources and Conservation.

Monument objectives call for a significant portion of visitor services related to the Monument to be located in the surrounding communities rather than within the Monument. In order to do this, a good working relationship with local tourism and service providers must be developed and maintained. Agreements with the local counties and communities for coordinating activities and needs such as planning, transportation, emergency services (i.e., search and rescue), law enforcement, infrastructure and tourism need to be explored.

How will transportation and access be managed?

A network of local, collector and resource roads currently provides access to many areas of the Monument. County roads are routinely graded and maintained by Blaine, Chouteau, Fergus and Phillips Counties, while BLM-managed routes receive various levels of maintenance based on a BLM maintenance schedule.

How will Monument management affect economic and social conditions in the area?

The Monument can provide tourism, hunting, and other forms of recreation while bolstering the economy of Montana. Monument management must recognize the continuation of existing land ownership and the economic activities that are dependent on the land and its natural resources.

Vision and Management Goals

The BLM's vision is to manage the Monument in a manner that maintains and protects its biological, geological, visual and historic objects and preserves its remote and scenic character. The RMP will incorporate the Proclamation, multiple use and existing laws, while recognizing valid existing rights and authorizations, and providing diverse recreational opportunities.

A number of management goals guided the development of alternatives for this RMP. These goals are the result of information provided through public scoping, existing laws and regulations, the Proclamation, and the planning team. These goals include:

- Manage visitor use and services on these BLM lands in a manner that protects Monument values and resources.
- Manage these BLM lands in a multiple use manner consistent with the Proclamation and all current law and policy.
- Manage legal and physical access to and within the Monument to provide opportunities for diverse activities.
- Manage these BLM lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes.
- Manage these BLM lands in a manner that provides a healthy ecosystem supporting plant and animal species and achieves a sustainable variation of native vegetation communities.
- Manage these BLM lands in a manner that provides current and future generations with the social and economic benefits compatible with the Proclamation.
- Manage these BLM lands in a manner that involves the public and collaborating agencies (local, state, federal and tribal) at every opportunity.

General Description of Each Alternative

The six alternatives provide a reasonable range of management options to resolve the issues identified for the Monument. The alternatives provide a range of more-intensive to less-intensive management. The following brief descriptions provide an overview of the alternatives developed and some of the unique aspects of each.

Alternative A (Current Management)

Alternative A emphasizes continuing the management activities that already occur in the Monument. These activities are now governed by the West HiLine RMP, Judith-Valley-Phillips RMP, Upper Missouri National Wild and Scenic River Management Plan Update and the State Director's Interim Guidance for Managing the Monument to the extent these plans are consistent with the Proclamation. This is the "no action" alternative which would create no change from the current management direction.

Under this alternative motorized use on the river would continue with the seasonal limitations on upstream travel and a no-wake speed restriction in the wild and scenic segments of the UMNWSR. The number of boaters on the river would not be limited and no allocation system would

be developed. About 579 miles of roads would be open to motorized travel either yearlong or seasonally and 10 backcountry airstrips would remain open.

Current stipulations would apply to the 12 West HiLine oil and gas leases, and conditions of approval for applications to drill natural gas wells would be developed and considered on a case-by-case basis during the permitting process on all 43 oil and gas leases. Under this alternative, it is foreseeable that 35 wells could be drilled on these leases in the Monument.

Alternative B

Alternative B emphasizes more intensive recreation and transportation management. Resource management activities would allow camping facilities and interpretive sites at varying levels to enable visitors to experience both the natural and historic benefits of this Monument, while ensuring that resource protection is not compromised.

Under this alternative, motorized use on the river would be allowed yearlong on all segments. The number of boaters on the river would not be limited and no allocation system would be developed. About 538 miles of roads would be open to motorized travel either yearlong or seasonally and 10 backcountry airstrips would be designated open.

Alternative B would be the least restrictive alternative concerning oil and gas activity. Under this alternative, existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the Monument was designated. Under this alternative, it is foreseeable that 44 natural gas wells could be drilled on the existing leases in the Monument.

Alternative C

Alternative C emphasizes providing visitors with opportunities to experience the Monument. This alternative is distinguished from Alternative B in that it would more readily identify and accommodate changing conditions over time through the application of management decisions responsive to these changing conditions. This alternative provides more flexibility to respond to increasing visitation and risks to resources that could occur over time.

Under this alternative, motorized use on the river would be allowed with seasonal limitations on upstream travel and a no-wake speed restriction in the wild and scenic segments. Standards and indicators would be used to manage boaters on the river and impacts to resources, and no allocation system would be developed. About 501 miles of roads would be open to motorized travel either yearlong or seasonally and seven backcountry airstrips would be designated open.

Management of oil and gas operations would be more restrictive under this alternative, allowing less activity to occur than Alternatives A, B and F. Existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the Monument was designated. Under this alternative, it is foreseeable that 28 natural gas wells could be drilled on the existing leases in the Monument.

Alternative D

Alternative D also emphasizes providing visitors with opportunities to experience the Monument, but in a more self-directed fashion. This alternative differs from Alternative C in that it would limit certain activities now rather than applying management decisions responsive to changing conditions.

Under this alternative, motorized use on the river would be allowed with seasonal limitations on upstream travel and a no-wake speed restriction in the wild and scenic segments. Standards and indicators would be used to manage boaters on the river and impacts to resources and an allocation system would be developed when those standards and indicators are exceeded. About 330 miles of roads would be open to motorized travel either yearlong or seasonally and six backcountry airstrips would be designated open.

Management of oil and gas operations would be more restrictive under this alternative, allowing less activity to occur than Alternatives A, B, C and F. Existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the Monument was designated. Under this alternative, it is foreseeable that 13 natural gas wells could be drilled on the existing leases in the Monument.

Alternative E

Alternative E emphasizes the natural condition and places the most limitations on visitors and other activities. Subtle forms of resource management and monitoring would minimize intervention into natural processes.

Under this alternative, motorized use would not be allowed on any segment of the river. An allocation system would be developed to manage boaters on the river and impacts to resources. About 105 miles of roads would be open to motorized travel either yearlong or seasonally and no backcountry airstrips would be designated open.

Management of oil and gas operations would be most restrictive under this alternative, allowing no activity to occur on the existing leases within the Monument. Surface disturbance would not be allowed on the 12 West HiLine oil and gas leases (the entire leasehold) or the other 31 existing

oil and gas leases. Under this alternative, it is foreseeable that no natural gas wells would be drilled on these leases in the Monument.

Alternative F (Preferred Alternative)

Alternative F emphasizes providing visitors with opportunities to experience the Monument. This alternative provides more opportunities for adaptive management to respond to increasing visitation and risks to resources that could occur over time.

Under this alternative, motorized use on the river would be allowed with seasonal limitations on upstream travel and a seasonal no-wake speed restriction in the wild and scenic segments of the UMNWSR. In addition, the wild and scenic segment from Holmes Council Island to the Fred Robinson Bridge would be restricted to non-motorized watercraft from June 5 to September 15. Standards and indicators would be used to manage boaters on the river and impacts to resources and no allocation system would be developed. About 378 miles of roads would be open to motorized travel either yearlong or seasonally and six backcountry airstrips would be designated open yearlong or seasonally.

Management of oil and gas operations would be more restrictive under this alternative, allowing less surface-disturbing activity than Alternatives A or B. Existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the Monument was designated. Under this alternative, it is foreseeable that 34 natural gas wells could be drilled on the existing leases in the Monument.

Preferred Alternative

The following section describes the preferred alternative (Alternative F) for the Monument. Please refer to Chapter 2 for Decisions Common to All Alternatives, a complete description of the six alternatives, and Tables 2.38 and 2.39 for a summary comparison of alternatives and summary comparison of environmental consequences.

Fish and Wildlife – Greater Sage-Grouse Habitat

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

Sage-grouse management would utilize the 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana – Final for overall guidance and direction.

The BLM would consider mechanical treatment as the primary method and prescribed fire as a secondary method to remove conifers encroaching on sage-grouse habitat, except where forested habitat is limited.

The BLM would identify sage-grouse nesting habitat through field assessments. This alternative would require leaving adequate residual herbaceous cover beneath sagebrush within nesting areas at the end of the grazing season to allow adequate cover for the next year's nesting (sagebrush canopy cover of 15-20% and a perennial herbaceous cover greater than 7", or at the highest potential for existing ecological site present, as determined by NRCS soil survey).

This alternative would require grazing permittees to avoid the placement of salt or mineral supplements near leks during the breeding season (March 1 to June 15). The placement of salt or mineral supplements by other entities would not be allowed. Supplemental winter feeding would not be allowed on sage-grouse crucial winter habitat and around leks which have been occupied within the last 10 years.

This alternative would promote sage planting, where appropriate, on project areas (such as sites where sagebrush has been removed for crested wheat grass conversions) occurring with sage-grouse habitats and reclaim and/or re-seed areas disturbed by treatments.

Concentrations of livestock near leks or crucial winter habitat can disturb or displace sage-grouse. Therefore, concentrations of livestock on leks or other key sage-grouse habitats would be avoided by using conservative stocking levels, locating salt or other supplements away from leks or crucial winter habitat, adjusting grazing seasons and locating water facilities where they would not jeopardize habitat.

Fish and Wildlife – Black-Tailed Prairie Dogs

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

Prairie dog management would utilize the Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana (Montana Prairie Dog Working Group 2002) for overall guidance and direction. Regional plans (based upon Montana Fish, Wildlife and Parks administrative regions) would be utilized when they are completed.

Prairie dogs towns would be allowed to expand as long as they are not adversely impacting adjacent private or state land, other resources, or affecting Standards for Rangeland Health. Prairie dog towns would be adversely impacting

other resources, and controls could be considered, if prairie dog towns are: the source of or an exacerbation of invasive or noxious plants; substantially limiting forage and/or important habitat for wildlife species in the immediate area; substantially limiting forage for livestock in the immediate area; overriding the effectiveness of other management measures; or posing a substantial economic hardship or risk for other landowners, resulting from the need to control populations on private or state land because of prairie dogs on adjacent BLM land. Controls would not occur where mountain plover or burrowing owls have been documented using established habitat. Prairie dogs could be reestablished on historic towns which have been eradicated or which have died out due to bubonic plague. Specific actions to address adverse impacts to or from prairie dogs would be addressed through the watershed planning process and/or a site-specific environmental assessment.

Fish and Wildlife – Mitigation

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

The following mitigating measures would be applied to surface-disturbing activities for identified/important wildlife habitat in the Monument. Mitigating measures would be applied during activity level planning, after an on-site evaluation indicates the presence of the specific resource. Exceptions to these mitigation measures may be granted by the authorized officer if an environmental review demonstrates there would be no adverse impacts, habitat for the species is not present in the area, or portions of the area can be occupied without affecting a particular species.

Greater Sage-grouse – The BLM would not authorize new surface disturbance within 1/4 mile of active leks, nor would it allow new surface disturbance within nesting areas (a 2-mile radius of an active lek) from March 1 to June 15. This alternative would not authorize any new surface disturbance in active sage-grouse crucial winter habitat from December 1 to March 31.

Black-tailed Prairie Dog – New surface disturbance would not be authorized within 1/4 mile of prairie dog towns, if that activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – The BLM may control or exclude any new surface-disturbing activity within 1/4 mile of the proposed site or delay the activity for 90 days within identified crucial habitat and active nests. Surface-disturbing activities may also be controlled or excluded within 1/2 mile of active ferruginous hawk nests from March 1 to August 1. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – New surface-disturbing activities would not be allowed within 1/2 mile of an eagle nest that has been active in the last 7 years, if the disturbance could cause nest abandonment or failure.

Big Game Winter Range – New surface-disturbing activities would not be allowed on crucial wildlife winter ranges from December 1 to March 31. This timeframe could be shortened depending upon weather conditions, animal health and forage availability.

Bighorn Sheep – New surface-disturbing activities would not be allowed within bighorn sheep distribution areas from December 1 to March 31 and within bighorn sheep lambing areas from April 1 to June 15, if such activities would adversely impact lamb survival.

Vegetation

The BLM's goal is to manage for healthy vegetation communities that provide for a wide variety of long-term benefits such as aesthetics, wildlife, recreation, livestock grazing, etc. This includes achieving, or making significant progress toward proper functioning condition in riparian areas.

Activity plan updates, such as watershed plans or allotment management plans, would emphasize sagebrush and riparian habitat restoration and protection. In riparian areas that have potential to support riparian vegetation, BLM would, at its discretion, restore or establish native riparian vegetation.

If the opportunity is available (through the cancellation or relinquishment of a grazing permit or acquisition of additional land) the BLM would establish resource reserve grazing allotments. The Hay Coulee allotment would be a resource reserve allotment. These allotments would be available to offset the impacts of drought or to implement a project such as a prescribed fire which could create a temporary loss of animal unit months (AUMs).

The Monument would be managed to achieve a natural range of native plant associations, including measures to promote conservation of sensitive plant species. Management activities would not be allowed to substantially shift the makeup of native plant communities and associations or disrupt normal succession. However, there would be some circumstances where vegetation communities and associations would be shifted to meet specific management goals or objectives. These circumstances could include prescribed burns to reduce hazardous fuel loads, restoration of some habitat components in the interest of wildlife, treatments to control invasive species, etc.

The BLM would determine which priority non-native vegetation sites should be restored to a native species community. Priority ranking would be based on an emphasis to control highly invasive non-native species. To achieve the vegetation goals outlined during site-specific planning, livestock grazing strategies (adjusting grazing or rest seasons, adjusting stocking rates or stocking densities and the location of supplements) could be used to manage vegetation communities.

Surface-disturbed areas would be rehabilitated with native grasses, forbs and shrubs to minimize the potential for soil erosion and to provide forage and cover for wildlife and livestock. Non-native plants may be used under special circumstances, such as emergency soil stabilization.

Reclamation efforts would follow standard operating procedures. In some areas, disturbed surfaces would be allowed to reclaim naturally. For all surface-disturbing activities, the intent of the reclamation standards would be to minimize erosion and establish native vegetation. If the reclamation effort would reduce the impacts created by development, the BLM would remove and rehabilitate non-functional reservoirs, pits and water developments in WSAs or in other areas where there is viewshed infringement.

Range Improvements

The BLM's goal is to manage for healthy vegetation communities that provide for a wide variety of long-term benefits such as aesthetics, wildlife, recreation, livestock grazing, etc.

The BLM fence specifications would be followed with allowances for certain classes or types of livestock. Four-wire fences could be authorized if the class or kind of livestock necessitate the need for a more substantial fence. The BLM would modify existing fences that are creating barriers to wildlife movement. In isolated cases, the BLM would relocate fences to better fit with topography and management needs.

Any new water developments would be considered on a site-specific basis and would consider the benefits/detriment to all resources. Decisions about installing water developments would be based on grazing practices and wildlife habitat needs (big game, migratory birds, sage-grouse, amphibians, etc.) within a specific use area. A site should only be developed if the development would improve resource values. Site-specific planning would be used to make these determinations.

Visual Resources

The BLM's goal is to protect the cultural landscape (viewshed) and the visual features in

the landscape that are identified in the Proclamation.

The wilderness study areas (WSAs), wild segments of the UMNWSR, and Bodmer landscapes would be designated as Visual Resource Management (VRM) Class I (111,480 acres). The remaining portions of the Monument would be designated as VRM Class II (161,560 acres), III (24,770 acres), or VRM Class IV (77,190 acres). If the WSAs are determined by Congress as not eligible, they would be managed consistent with adjacent BLM land.

In VRM Class I areas the BLM may prohibit surface-disturbing activities if such activities are not designed to meet the intent of the visual quality objectives.

In VRM Class II, Class III and Class IV areas the BLM would reduce the visual contrast on BLM land in the existing landscape by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape.

Forest Products

The BLM's goal is to manage these BLM lands in a manner that provides a healthy ecosystem that achieves a sustainable natural variation of vegetation communities, which provides current and future generations with the social and economic benefits compatible with the Proclamation.

Where forest/woodland health is in jeopardy, minimal impact harvesting techniques which are appropriate for soil and topographical conditions may be pursued.

The Monument manager could designate incidental non-commercial or personal use areas for cutting Christmas trees and firewood. Under a permit, individuals could be allowed to utilize incidental material. The permit would address the specific type of material and conditions under which removal would occur.

Right-of-Way Corridors, Avoidance Areas, and Exclusion Areas

The BLM's goal is to provide reasonable access for the administrative needs and authorized uses of private landowners, industry and government agencies.

Eight utility and transportation systems that cross the Missouri River would be designated corridors. The utility and transportation corridors on BLM land would have defined boundaries within 1/2 mile of the centerline of the follow-

ing roads: U.S. Highway 191; State Secondary Highway #236; the Lloyd/Stafford Ferry road; DY Trail/Power Plant Ferry Road; and the Klabzuba pipeline. The corridors at Fort Benton, Loma and Virgelle would retain their current status.

Avoidance areas for rights-of-way (ROWs) would include the scenic sections of the UMNWSR, the Bodmer Landscapes, the Cow Creek Area of Critical Environmental Concern (ACEC), cultural/historic sites, riparian and wetland areas, areas containing unique geologic formations, areas considered unsuitable due to erosion and slope, and sage-grouse seasonal habitat where impacts could not be mitigated or effectively controlled. If the WSAs are not designated by Congress as wilderness and released from WSA status, they would be managed as avoidance areas.

Exclusion areas would include the wild sections of the UMNWSR and the six WSAs, pending determinations by Congress. Exceptions to exclusion areas could be granted and would be handled in a site-specific environmental assessment on a case-by-case basis, based on the nature of the action and level of impact. This exception clause is considered necessary due to the potential installation of an oil and gas pipeline which would enter on state land south of the Missouri River and exit on private land north of the Missouri River, but would cross under the river and under the Stafford WSA.

Land Ownership Adjustment

The following BLM land is identified for disposal: T22N R16E, E2NE of sec. 15 (80 acres). The parcel is on the edge of the Monument, contains minimal Breaks topography, and contains no objects for which the Monument was designated. The BLM land would be exchanged for private land identified as T22N R15E, sec. 3, Lot 5 (24.60 acres) and sec. 4, Lot 8 (46.52 acres). This land exchange proposal was initiated by the private landowner in March 2002.

Fire

The BLM's goal is to control wildland fire safely, efficiently and with minimal impact to resource values while minimizing the risk of catastrophic fire within the Monument and communities adjacent to the Monument. This includes maintaining or reestablishing the natural influence of fire on vegetation communities and associations.

The Monument includes four fire management units (FMUs): Wild and Scenic River, Wilderness Study Areas, North Monument and South Monument.

The appropriate suppression response to all wildland fires would be based on firefighter and public safety, while considering the natural role of fire. Fires would be managed with less than full suppression efforts and, in most cases, allowed to burn to natural barriers or roads. The cost of suppression would also be considered. Resource values, such as sage-grouse habitat, would be protected during wildland fire suppression through the knowledge of resource advisors assigned to wildland fire incidents and/or information on the location of critical resource areas available to incident commanders; however, protection for resource values would be secondary to life safety and property values.

Prescribed fires could be used in three of the FMUs (Wilderness Study Areas, North Monument and South Monument) based on the flexibility to respond to changing conditions and the goal of returning fire to a more natural role on the Monument landscape. Prescribed fire in the Wild and Scenic River FMU would be based on public safety and resource issues.

Wild and Scenic Rivers (Cow Creek, Eagle Creek and Dog Creek)

The Wild and Scenic Rivers Act (Pub. L. 90-542 as amended; 16 U.S.C. 1271-1287) established a method for providing federal protection for certain of our country's remaining free-flowing rivers, preserving them and their immediate environments for the use and enjoyment of present and future generations. Rivers are included in the system so that they may benefit from the protective management and control of development for which the Act provides.

The BLM inventoried 66 streams and found three streams eligible for inclusion in the National Wild and Scenic Rivers system: Cow Creek, Eagle Creek, and Dog Creek.

The BLM would not recommend the three eligible stream segments as suitable for inclusion in the National Wild and Scenic Rivers system. Management for each area would be provided by the guidance in the Monument RMP.

Visitor Use, Services and Infrastructure

Recreation

The BLM's goal is to preserve historic and cultural values and sites by enhancing public awareness or protection of the resources.

This section addresses management for the entire Upper Missouri River Breaks National Monument and would apply to all the recreation management areas.

Recreation Management Areas – The Monument would be included in two special recreation management areas (SRMAs): Upper Missouri River SRMA and Uplands SRMA. The Upper Missouri River SRMA includes BLM land from Fort Benton downstream to Arrow Creek and the entire UMNWSR. The Uplands SRMA includes BLM land both north and south of the UMNWSR downstream from Arrow Creek to the James Kipp Recreation Area.

Fees – The BLM would implement an expanded amenity fee for overnight camping in Level 1 recreation sites. The sites would provide at least a majority of the following: tent or trailer spaces, picnic tables, drinking water, access roads, collection by an employee or agent, reasonable visitor protection, refuse containers, toilet facilities and simple devices for containing a fire. Level 1 sites currently include Wood Bottom, Coal Banks Landing, Judith Landing, Lower Woodhawk and the James Kipp Recreation Area. This fee system would also apply to any additional Level 1 site that may be constructed. In addition, the BLM may charge fees for use of some existing structures in the Monument, including cabins and corrals, consistent with the Federal Lands Recreation Enhancement Act (FLREA). After the RMP is completed the BLM, with public input, would develop a business plan to determine the actual fee amounts charged.

A Special Recreation Permit would be required to boat on the Missouri River. It would be referred to as a Special Area Permit. The cost of the permit would be established by the State Director based on the cost of operating the permit system, special costs related to management of the area, comparability with other agencies and similar special areas, and fairness and equity among all users. Camping overnight at Level 1 expanded amenity fee sites would be included with the Special Area Permit fee.

Expanded amenity fees collected for camping would be returned to the Lewistown Field Office and used at Level 1 sites for expenditure on site maintenance and visitor services as established in FLREA.

Fees associated with the Special Area Permit to float the Missouri River would be returned to the Lewistown Field Office and used to cover management costs. In addition, fees could be used to support county emergency services and to purchase short-term campsite easements or leases from willing private landowners.

Gateway communities – The BLM would strive to encourage and sustain collaborative partnerships, volunteers and citizen-centered public service. The BLM would provide a staffed visitor information site in Chinook, Big Sandy and Winifred or partner with these gateway communities to provide visitor information.

The BLM would encourage private sector initiatives as a means of developing river visitor use opportunities. The Monument offers a wide range of visitor opportunities, only some of which can be provided by the BLM. To overcome these limitations, non-governmental entities, either individuals or institutions, could help accomplish initiatives compatible with the Monument. These initiatives would not result in permanent facilities in the Monument.

A wide variety of activities can be generated by private sector initiatives. Services for boats or horses, overnight or extended-stay lodging facilities, food/water and other provision sales and guiding are services traditionally offered in this way. Other opportunities may be created by using the Monument for touring and instructional purposes and for expanded regional promotional activities.

Research, collection and special events – The BLM would authorize archaeological and historical investigations. Prehistoric sites would be evaluated and then monitored, protected or excavated based on their scientific value and what they can add to knowledge and interpretation of the Monument. Historic sites would be evaluated and then monitored or maintained based on their historic value, the attraction they have for visitors and their use as safety shelters.

The BLM would allow and authorize paleontological research. All BLM land is closed to commercial collecting of paleontological resources under existing policy and regulation (BLM Manual 8270). Permits are issued to accredited institutions to conduct activity on BLM land to ensure that the resource is used for public display and education purposes only. Scientific use allows for survey/reconnaissance or limited excavation work with a minimum amount of surface disturbance, as long as such work is conducted under a paleontological permit and maintains the values for which the Monument was established.

The collection of common invertebrate fossils and petrified wood for personal use would be allowed in specific identified areas within the Monument, as limited by the regulations (43 CFR 3620 and 8365).

The personal collection of plant material (e.g., vegetation, seeds and berries) would be allowed. Wildcrafting or commercial collection of plant materials would not be allowed without a specific permit.

The use of metal detectors would be allowed by permit only. A permit for metal detector use may be authorized by the Monument manager when determined to be in the interest of the public and consistent with the goals of the Monument. Metal detectors, magnetometers or other remote sensing equipment may also be allowed for administrative purposes or public health and safety uses as determined by the Monument manager.

Special recreation permit applications for activities or events may be granted, if the activity would not impact the resources or values for which the Monument was designated. Large group events would be authorized subject to restrictions to protect resources. These restrictions may include, but would not be limited to, the designation of specific roads or trails for a particular event, limitations on parking, use of campfires, sanitation requirements and the number of people involved in the event.

Recreation in sensitive wildlife habitat – The BLM would allow the personal collection of shed antlers (horn hunting). However, the BLM could implement a seasonal restriction (December 1 to March 31) on the disturbance of shed antlers to protect wildlife during the winter, if harassment is a problem.

Camping would not be allowed on BLM islands from April 1 to July 31, to protect wildlife during sensitive periods (e.g., nesting, brooding periods).

Interpretive sites – Historic, archaeological, and geological opportunities on BLM land would be enhanced by developing the interpretive potential at selected sites. Small, low-key interpretive signs that blend in with the surroundings (and not visible from the Missouri River) would be established at specific sites. These low-key sites would be for dispersed recreation opportunities. Simple markers would be provided for some cultural sites. Portable interpretation (guidebooks and brochures) would be available.

Topics for interpretation would be selected based on setting, visitor benefits and the potential to provide the area's history or prehistory via interpretation. Some potential cultural sites for interpretation would include Decision Point; Eagle Creek; the Murray/PN dugout; Hagadone, Middleton, Ervin, Gist, Cable, and Nelson homesteads, Gilmore cabin; Nez Perce Trail; and sites associated with the Lewis and Clark Expedition. Other possible interpretive sites and topics could include prehistoric sites and the steamboat era on the Missouri River.

Some potential geological interpretive sites would include the stratigraphic cross section of the Missouri River from Virgelle to the James Kipp Recreation Area showing the regional dip of beds starting in Colorado Shale and ending in Bearpaw Shale; the glacial geomorphology and paleo channel of the Missouri River at Little Sandy Creek; the igneous dike known as the Grand Natural Wall from the Lewis and Clark Journal entry; Hole-in-the-Wall; the Big Sag at Judith Landing; the Sugarloaf Rock fault plane vs. bedding plane at Stafford Ferry; the diatrema at Gist Bottom; and the invertebrate paleo site at Woodhawk.

Upper Missouri River Special Recreation Management Area (SRMA)

The BLM's goal is to manage these lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes. This goal would allow BLM to provide for dispersed and developed recreation opportunities and ensure visual quality characteristics reflect a predominantly primitive or natural landscape while providing for a diversity of visitor experiences.

This section addresses specific management for the Upper Missouri River SRMA, which primarily includes management for the UMNWSR.

Special recreation use permits – There would be a limit of 23 special recreation permits (SRPs) and a one-trip-per-season permit for non-permitted commercial users. An SRP, with a fee, would be required for commercial recreational use on the Missouri River and related land in the UMNWSR (43 CFR 2930) to prevent damage to BLM land or water resource values and to prevent social conflicts.

Opportunities for boaters – The BLM would monitor standards and indicators to manage visitor use of and impacts to resources. Once those standards and/or indicators are reached or exceeded, the BLM would take the necessary action to reduce impacts to resources without limiting the number of people boating the Missouri River. Management actions are discussed in Appendix J and include, but would not be limited to, a mandatory registration system, camping at designated sites, limiting the number of days camping at designated sites, resting and/or rotating campsites, and closing campsites.

From June 15 to August 1, the BLM would require groups larger than 20 people to launch at Coal Banks or Judith Landing on Wednesday, Thursday or Friday. Groups of less than 20 people could launch from any site, any day. Groups larger than 30 people would require a special recreation permit, year round, for boating the Missouri River.

Camping facilities – The existing camping facilities would remain at the current campsites along the Missouri River. To provide dispersed recreation opportunities and benefits, additional Level 1 sites would be constructed only in the recreation segments of the UMNWSR. Improvements to existing Level 1 and 2 sites could occur to improve infrastructure or address visitor use issues. Additional Level 2 sites could be constructed between Fort Benton and Judith Landing as necessary to improve resource conditions, improve distribution of visitor use or resolve visitor use conflicts. Associated facilities and construction could not detract from the visual character and integrity of the UMNWSR. Additional Level 3 campsites could be added

as needed to accommodate increases in use. Dispersed camping (Level 4 opportunities) would be allowed on all BLM land.

The BLM would maintain all developed sites. New capital improvements would be allowed if impacts to cultural and natural resources could be mitigated to an acceptable level. All improvements would comply with the Wild and Scenic Rivers Act, as amended.

The BLM would seek to purchase short-term (1-5 year) campsite easements or leases from willing private landowners for alternative or additional campsites to provide dispersed camping opportunities and benefits.

The BLM would implement a 2-night limit at Level 2 campsites from June 15 to August 1. The BLM would maintain the 14-night limit at Level 1 and 3 sites and for dispersed camping (Level 4 opportunities).

The BLM would implement a Leave No Trace program and require the use of camp stoves, fire pans or fire mats for dispersed camping (Level 4 opportunities).

Signing in Level 1 sites could be used to safely direct traffic, provide information, or provide interpretive messages. Signing should be commensurate with visual surroundings and level of development. Signing located along the Missouri River would identify campsites and would be of minimum size and only used at Level 1, 2 and 3 campsites. Signing within campsites and elsewhere within the UMNWSR would be limited to existing infrastructure and of sufficiently low profile to not be visible from the river.

Motorized watercraft – The BLM would revise the current seasonal boating restrictions on the Missouri River as shown below. The recreation segments of the UMNWSR would be open to motorized watercraft year round except personal watercraft and floatplanes would only be allowed on river miles 0 to 3 near Fort Benton.

The wild and scenic segment from Pilot Rock to Deadman Rapids would have a seasonal restriction from June 5 to September 15 with downstream travel only at a no-wake speed. Personal watercraft and floatplanes would not be allowed on this segment of the river yearlong.

The wild and scenic segment from Holmes Council Island to Fred Robinson Bridge would have a seasonal restriction from June 5 to September 15, where no motorized watercraft would be allowed. Personal watercraft and floatplanes would not be allowed on this segment of the river yearlong.

A cooperative effort among agencies operating on the river would be initiated. A Memorandum of Understanding would be developed with the goal of achieving uniform standard operating procedures designed to minimize im-

pacts to boaters from administrative use of motorized watercraft.

Livestock grazing permittees would be allowed upstream travel to administer their grazing permit with prior notification to the BLM. The BLM would authorize the travel verbally for unplanned situations or by a letter to the permittee for activities requested in advance.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Uplands Special Recreation Management Area (SRMA)

The BLM's goal is to manage these lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes. This goal would allow BLM to provide for dispersed and developed recreation opportunities and ensure visual quality characteristics reflect a predominantly primitive or natural landscape while providing for a diversity of visitor experiences.

This section addresses specific management for the Uplands SRMA, which primarily includes management for the BLM land outside of the UMNWSR.

Special recreation use permits – The BLM would limit the number of SRPs for commercial outfitting and guiding (hunting) to the current level of outfitters (14). Each of the 14 permits issued would be assigned to the existing use area/lease as of 2004.

It is the BLM's goal to provide recreational opportunities via authorized commercial operators for visitors lacking the skill or equipment necessary to otherwise participate. To meet this goal, an adaptive management strategy would be developed that is responsive to changing visitor use trends and resource conditions. While the current use levels for the upland SRPs appear to be adequate, visitor demand for commercial hunting and guiding services could increase in the future. Visitor use data would continue to be collected and analyzed with the results incorporated into future management decisions. Should visitor use levels increase or patterns of use change, it may be necessary to issue additional permits, adjust use areas, incorporate conditions limiting net hunter/client use days (visitor use days), or include other conditions necessary to best manage upland permits.

Adaptive management decisions would be based on BLM's 2930 Recreation Permit Administrative Handbook, BLM's Montana Outfitter Management Guidelines and the 1997 Memorandum of Understanding with the Montana Board of Outfitters (BLM MOU MT932-9111).

River Segment	Motorized Use
River Mile 0 to 52 Fort Benton – Pilot Rock (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would only be allowed on river miles 1 to 3 yearlong.
River Mile 52 to 84.5 Pilot Rock – Deadman Rapids (Wild and Scenic Segment)	Motorized watercraft travel downstream at a no-wake speed would be allowed from June 5 to September 15. Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from September 16 to June 4. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.
River Mile 84.5 to 92.5 Deadman Rapids to Holmes Council Island (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.
River Mile 92.5 to 149 Holmes Council Island to Fred Robinson Bridge (Wild and Scenic Segment)	Motorized watercraft travel would not be allowed from June 5 to September 15. Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from September 16 to June 4. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.

The BLM would issue special recreation use permits for commercial motorized tours. Motorized tours would be restricted to two vehicles or less per day for each commercial permit on local, collector and some identified resource roads.

Camping facilities – The BLM would consider developing Level 1 campsites, but they would only be constructed at the beginning of public access roads into the Monument. These sites could include interpretive kiosks. The BLM would encourage private landowners outside the Monument to develop Level 1 sites and services. Level 2 campsites would be park and explore sites where people could walk from designated parking areas. Level 3 sites would be pullout sites adjacent to local and collector roads or on identified/signed (camping access only) closed resource

roads that are spurs (dead end within 300 feet) from a designated “open” local or collector road. Fire rings would be the only improvement at these sites. Level 3 sites would be shown on a map with information concerning the facilities and opportunities associated with the site.

The BLM would implement a Leave No Trace program and camp stoves, fire pans or fire mats would be required for dispersed camping (Level 4 opportunities).

Signing in the uplands would be limited to Level 1 sites commensurate with visual surroundings and level of development. Signing could be used as necessary at Level 2 sites, but only within new or existing infrastructure. No other signing would be used within the uplands except for required transportation system signs.

Natural Gas Exploration and Development

Oil and Gas

The BLM's goal is to provide reasonable oil and gas exploration and development on existing leased land without diminishing the objects of the Monument.

The Proclamation does not allow new oil and gas leases in the Monument. The 43 federal oil and gas leases in the Monument are considered to have valid existing rights based upon the Proclamation, wherein it states, "The establishment of this monument is subject to valid existing rights. The Secretary of Interior shall manage development on existing oil and gas leases within the monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation." The existing leases are also in compliance with their lease terms and conditions.

Leases issued for federal minerals include stipulations that apply to the exploration and development activity that might be proposed during the lease term. Existing resources should be taken into consideration before oil and gas lease activity is permitted. Over the last 36 years of issuing leases within the Monument, eight stipulation forms were used. Many of the early leases (May 1967 through September 1971) contained no stipulations beyond the standard terms of the lease; the majority of the leases issued after July 1972 included stipulations with provisions for wildlife, cultural resources, rough terrain and threatened and endangered species, should they be present on the lease. All oil and gas lease activities would be subject to existing laws (e.g., Clean Water Act, Endangered Species Act, National Historic Preservation Act) regardless of the age of the lease or the stipulations attached to the lease.

Oil and Gas Lease Conditions of Approval

The existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects in the Monument. The conditions of approval would apply to all the oil and gas lease acreage (42,805 acres) in the Monument. The conditions of approval would be applied to the application for permit to drill (APD) after an onsite evaluation indicates the presence of the specific resource and after considering waivers, exceptions and modifications. The current stipulations (Form 3109-1) would apply to that portion of five of the 12 West HiLine oil and gas leases that are not entirely within the Monument (2,454 acres).

Seasonal or distance restrictions would be placed on oil and gas activities to protect sage-grouse nesting areas and winter habitat, active ferruginous hawk nests, big game winter range, and bighorn sheep distribution and bighorn sheep lambing areas.

Timing – Alternative F

Greater Sage-Grouse Nesting Zone – Surface disturbance would be prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. Travel on identified designated roads may include these timing restrictions or limited site visits.

Greater Sage-Grouse Crucial Winter Habitat – Surface disturbance would be prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition would not apply to the operation and maintenance of production facilities. Travel on identified designated roads may include these timing restrictions or limited site visits.

Ferruginous Hawk – Surface disturbance would be prohibited from March 1 to August 1 within 1/2 mile of active ferruginous hawk nest sites.

Big Game Winter Range – Surface disturbance would be prohibited from December 1 to March 31 within winter range for elk and deer and crucial antelope winter range. Travel on identified designated roads may include these timing restrictions or limited site visits.

Bighorn Sheep Distribution – Surface disturbance would be prohibited from December 1 to March 31 within bighorn sheep distribution areas. Travel on identified designated roads may include these timing restrictions or limited site visits.

Bighorn Sheep Lambing Areas – Surface disturbance would be prohibited from April 1 to June 15 within bighorn sheep lambing areas. Travel on identified designated roads may include these timing restrictions or limited site visits.

Controlled surface use conditions would be applied to protect black-tailed prairie dogs, designated sensitive species, most soils, visual resources in Class II, III and IV areas and cultural resources.

Controlled Surface Use – Alternative F

Black-tailed Prairie Dogs – Surface disturbance may be controlled or excluded within 1/4 mile of prairie dog towns, if an activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – Surface disturbance may be controlled or excluded within 1/4 mile of the proposed site or the activity delayed 90 days within identified crucial habitat or active nests.

Soils/Steep Slopes – Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following would be accomplished:

- Site productivity would be restored.
- Surface runoff would be adequately controlled.
- The site and adjacent areas would be protected from accelerated erosion, such as rilling, gullyng, piping, slope failure, and mass wasting.
- Nearby watercourses would be protected from sedimentation. Water quality and quantity would be in conformance with state and federal water quality laws.
- Surface-disturbing activities would not be conducted during extended wet periods.
- Construction or reclamation would not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Visual Resource Management (VRM) Classes II, III and IV – All surface-disturbing activities, semi-permanent and permanent facilities in VRM Classes II, II and IV would utilize proper site selection; reduction of soil and vegetative disturbance; choice of color; and over time, return the disturbed area to a seamless, natural landscape.

Historic Properties and/or Cultural Resources – The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Surface disturbance would not be allowed in order to protect sage-grouse leks, bald eagle nest sites and nesting habitat, streams and riparian/wetland areas, soils on slopes

40% and greater, visual resources in VRM Class I areas and developed recreation areas.

No Surface Disturbance – Alternative F

Greater Sage-Grouse Leks – Surface disturbance would be prohibited within 1/4 mile of sage-grouse leks.

Bald Eagle Nest Sites and Nesting Habitat – Surface disturbance would be prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years, if disturbance could cause nest abandonment or failure.

Streams and Riparian/Wetland Areas – Surface disturbance would be prohibited within 500 feet of the channels of ephemeral, intermittent, and perennial streams, or within 500 feet of the outer margins of riparian and wetland areas.

Soils/Steep Slopes – Surface disturbance would be prohibited on slopes 40% and greater.

Visual Resource Management (VRM) Class I – Surface disturbance would be prohibited in VRM Class I areas.

Recreation – Surface disturbance would be prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas (Level 1, 2, and 3 sites) and undeveloped recreation areas receiving concentrated public use. Work-over types of operations would be limited to weekdays, except for emergency situations when operations would be allowed.

Natural Gas Operations

Seismic – Vehicle activity would be restricted to designated roads. Exceptions would be authorized on a case-by-case basis dependent upon the degree of data needed to identify the resource and the operator's ability to mitigate surface disturbance.

Surface blasting would be allowed on a case-by-case basis, provided the blasts would not interfere with the proper care and management of the objects protected by the Monument Proclamation. Sensitive areas would require helicopter support.

Drilling Operations – Spacing would remain consistent with state spacing requirements and current Board Orders for the Leroy and Sawtooth Mountain Gas Fields. Proposals for increased well densities would be allowed up to one well site per quarter section, subject to siting criteria (i.e., visual resources, sensitive wildlife species and slope/soil concerns). Any more than one well per quarter section

would be directionally drilled from an existing active well location in the quarter section.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), American Petroleum Institute (API) recommended practices and standard operating procedures including surface operating standards for natural gas exploration and development (referred to as the “Gold Book”).

Only the minimal amount of surface disturbance would be permitted for drilling and production phases. The disturbed area would be confined to an acceptable (safe) area/space based on the type of operation. The objectives would be to achieve a desired effect on the land with minimum disturbance by using low impact drilling technology, developing multiple wells from one location or staying away from trouble or problem areas. This would include the access to a drilling site. The objectives would be to reduce impacts, avoiding areas that could be subject to high impacts, and locating the operation away from sensitive areas.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security), No. 5 (Measurement of gas), and No. 7 (Disposal of produced water); and best management practices (BMPs).

Pipeline placement and construction would be restricted to existing disturbance or the least intrusive disturbance (existing roads).

The BLM would require operators to utilize wildlife mitigation and BMPs on all gas compressors for noise control. Large gas compressors or pumping units (long-term noise producers) should be located outside the Monument, but if they must be located within the Monument, BMPs would be followed.

Gas compressors, pumping units and production infrastructure would be located where they minimize noise and visual impacts and comply with VRM objectives established for the area. The VRM objectives provide standards for the design and development of projects.

Fencing, meter/well sheds, risers, well head equipment, water disposal pits and netting would be allowed.

Water disposal pits would be sized according to water production with berms into the pit. All containment systems would require wildlife escape ramps and/or netting

where necessary. For wells in the Monument, only two trips per month would be authorized to transport water off site. Exceptions would be considered on a case-by-case basis. The operator would have the option to dispose of the water via pipeline to an approved facility, disposal pits including tanks, or in an approved water disposal well if these other options are not viable.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits. For construction and heavy trucks related to production, this alternative would restrict equipment that exceeds 49db from being within 2 miles of sage-grouse leks between 4:00 a.m. and 8:00 a.m. and from 7:00 p.m. to 10:00 p.m. between March 1 and June 15.

Reclamation – Reclamation efforts would follow BMPs and standard operating procedures. In some areas, disturbed surfaces (i.e., current wells with final abandonment notices with less than 100% reclamation) would be allowed to reclaim naturally. The intent of the reclamation standards would be to minimize erosion and establish native vegetation.

Access and Transportation

Access

The BLM's goal is to manage legal and physical access to and within the Monument to provide opportunities for diverse activities.

The BLM would attempt to acquire public access easements with willing landowners where no legal public access exists to or within the Monument, or where additional public access is needed to meet management objectives, including dispersed recreation use. The BLM would consider building or rerouting roads as necessary for additional public access to large blocks of BLM land. The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to improve recreation access. This may involve participation in block management programs or developing access agreements with willing private landowners.

The BLM would coordinate with the Charles M. Russell (CMR) National Wildlife Refuge to improve recreation access to the east side of the Monument from the James Kipp Recreation Area. The BLM would also coordinate with Blaine County and the Fort Belknap Community Council to improve recreation access across the Cow Island and Timber Ridge roads in the northeast area of the Monument.

New resource roads to natural gas operations would be closed for public access, unless shown to meet management

objectives through a site-specific environmental assessment.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager. If the need arises, the BLM could identify specific designated closed roads as access for individuals with disabilities.

BLM Road System

The BLM’s goal is to provide access to state and federal land and reasonable access for private landowners while protecting the features of the Monument. This includes access for administrative needs and authorized uses of industry and government agencies.

The BLM’s goal is to manage legal and physical access to and within the Monument to provide

opportunities for diverse recreation activities (motorized and non-motorized) while considering the surrounding regional recreation opportunities in north-central Montana. The Monument is a relatively small but significant part of this region and cannot provide opportunities for all recreational activities on all BLM land while protecting the objects for which it was designated.

Public use of private roads that provide access to BLM land in the Monument must be negotiated with the individual landowners. Seven road segments which cross state land are currently open for public travel. All other road segments which cross state land, unless covered by a public access easement (there are five of these), are currently closed to motorized travel.

BLM roads are classified into three categories (collector, local and resource roads) and five maintenance levels. The transportation alternatives are based on these BLM classifications and maintenance levels as described below and on the following page.

BLM Road Classifications

Collector Roads	These Bureau roads normally provide primary access to large blocks of land, and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic of all the roads in the Bureau road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the Bureau. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures.
Local Roads	These Bureau roads normally serve a smaller area than collectors, and connect to collectors or a public road system. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by effect of terrain, may be single-lane roads with turnouts. Environmental impacts are reduced as steeper grades, sharper curves, and lower design speeds than would be permissible on collector roads are allowable.
Resource Roads	These Bureau roads normally are spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing Bureau costs, with minimal consideration for user cost, comfort, or travel time.

BLM Road Maintenance Levels

Maintenance Level 1	This level is assigned to roads where minimum maintenance is required to protect adjacent lands and resource values. These roads are no longer needed and are closed to traffic. The objective is to remove these roads from the transportation system.
Maintenance Level 2	This level is assigned to roads where the management objectives require the road to be opened for limited administrative traffic. Typically, these roads are passable by high-clearance vehicles.
Maintenance Level 3	This level is assigned to roads where management objectives require the road to be open seasonally or year-round for commercial, recreation, or high volume administrative access. Typically, these roads are natural or aggregate surfaced, but may include low use bituminous surfaced roads. These roads have defined cross sections with drainage structures (e.g., rolling dips, culverts, or ditches). These roads may be negotiated by passenger cars traveling at prudent speeds. User comfort and convenience are not considered a high priority.
Maintenance Level 4	This level is assigned to roads where management objectives require the road to be open all year (except may be closed or have limited access due to snow conditions) and to connect major administrative features (recreation sites, local road systems, administrative sites, etc.) to county, state, or federal roads. Typically, these roads are single or double lane, aggregate or bituminous surface, with a higher volume of commercial and recreational traffic than administrative traffic.
Maintenance Level 5	This level is assigned to roads where management objectives require the road to be open all year and are the highest traffic volume roads of the transportation system.

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. These roads would also be open for public travel, if shown to meet Monument objectives.

The BLM's objectives would be to retain roads to access recreation sites, gas well sites, major range improvement projects, backcountry airstrips and access to areas commonly used for dispersed recreation (geological areas and trailheads). The BLM would reduce the number of parallel and spur roads and roads in crucial wildlife habitat, in areas considered unsuitable due to erosion and slope, and if unique geologic formations, cultural sites or riparian areas are being degraded. The BLM reserves the option to build new roads if necessary to access blocks of BLM land.

Roads that are open year long or seasonally would be open to all forms of motorized and mechanized use consistent with management objectives. Some closed roads could be designated as mechanized (e.g., mountain bike) trails through site-specific planning and environmental review.

Road System Criteria – Along with the objectives discussed above, the factors used to identify the overall road system are listed on the following page.

These factors were used to determine which roads in the Monument would be open yearlong or seasonally. The road system could be modified if vehicle use patterns or resource conditions change. Modifications to the road system would be based on the management guidance under this alternative and changes would be addressed through a travel plan with public participation.

BLM Roads Open Yearlong, Seasonally, or Closed

<i>Designation</i>	<i>Road Miles</i>
Open Yearlong	207
Open Seasonally	171
Closed	216
Total	594

Road System Criteria

Vehicle Ways in WSAs – Vehicle ways that have reclaimed naturally would be closed.

Greater Sage-Grouse – For some resource roads that are 1/4 mile from an active lek, a seasonal closure would be implemented from March 1 to June 15. For some resource roads that are located within crucial winter habitat, a seasonal closure would be implemented from December 1 to March 31.

Bighorn Sheep Lambing Areas – For some resource roads that are located within bighorn sheep lambing areas, a seasonal closure would be implemented from April 1 to June 15.

Big Game Winter Range – For some resource roads that are located within big game winter range, a seasonal closure would be implemented from December 1 to March 31 on a case-by-case basis.

Wildlife Habitat Security and Game Retrieval – Some resource roads could be closed from September 1 to November 30 to provide wildlife habitat security during the fall hunting season. Game retrieval would be allowed from 10:00 a.m. to 2:00 p.m.

Designated Sensitive Species – A seasonal closure would be implemented on some resource roads that are 1/4 mile from raptor nests that have been active for the last 5 nesting seasons. The season would be determined based on the species of raptor.

Bald Eagle – A seasonal closure would be implemented from February 1 to May 31 on some resource roads that are 1/2 mile from active bald eagle nests.

Invasive Weeds – Temporary resource road closures would be implemented in highly infested areas.

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and a maintenance level that reflects the appropriate management objectives. The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

The Cow Island, Knox Ridge, Wood (Muir) Bottom and James Kipp Recreation Area roads would be classified as collector roads. The Timber Ridge, Bullwhacker, Middle Two Calf, Lower Two Calf, Woodhawk Bottom and Woodhawk Trail roads would be classified as local roads. All other roads would be classified as resource roads.

The Cow Island, James Kipp Recreation Area and Wood (Muir) Bottom roads would be assigned to a Level 4 maintenance category. The Knox Ridge, Timber Ridge, Bullwhacker, Middle Two Calf, Lower Two Calf, Spencer Cow Camp and Woodhawk Trail roads would be assigned to a Level 3 maintenance category. The remaining open roads would fall under the Level 2 maintenance category.

The BLM would install cattleguards as needed or where appropriate on roads that are designated open yearlong.

Most closed roads would be reclaimed naturally. On selected sections of closed roads, reclamation may include ripping, scarifying and seeding with a native seed mix or a mix approved by the Monument manager.

Road Classification and Maintenance Level

<i>Road Classification</i>	<i>Miles</i>	<i>Maintenance Level (miles)</i>				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Collector	21	0	0	8	13	0
Local	40	0	4	36	0	0
Resource	533	216	310	7	0	0
Total	594	216	314	51	13	0

Exceptions for Travel Off Road and on Closed Roads –

Travel off road and on closed roads would be allowed for any military, fire, search and rescue, or law enforcement vehicle used for emergency purposes.

Administrative and emergency use would be allowed off road and on closed roads for BLM, other federal, state and county agencies, lessees and permittees. Administrative use would be limited to those activities necessary to administer the permit.

Big game retrieval by motorized vehicles would be allowed from 10 a.m. to 2 p.m. on specific designated closed roads (roads that are seasonally closed). Non-motorized/non-mechanized game carts would be allowed off road, except in the WSAs, to retrieve a tagged big game animal. Game carts would not be allowed off road in the WSAs.

Motorized or mechanized vehicles may pull off designated roads no more than 300 feet for camping and must use the most direct route to minimize resource damage. Site selection must be completed by non-motorized or non-mechanized means and camping would be encouraged at previously used sites to reduce the number of new campsites.

In the WSAs, motorized or mechanized vehicles would not be allowed to pull off designated roads for camping. However, parallel camping along roads would be allowed.

Signing – Existing traffic control and directional signs would be maintained. New signs would be added where monitoring indicates a need to enhance safety or prevent resource damage or visitor confusion. Roads open to motorized and mechanized travel would be signed (small road number signs). Closed roads would not be signed unless necessary to prevent resource damage.

Aviation

The BLM's goal is to provide access for diverse recreation opportunities while protecting the features in the Monument.

Six airstrips (selected to avoid clusters) would remain open. Four of these airstrips would be restricted seasonally, based on wildlife habitat requirements or values for which the Monument was established. The Cow Creek and Knox Ridge backcountry airstrips would be open yearlong. The Left Coulee, Bullwhacker and Black Butte North backcountry airstrips would be closed from December 1 to March 31. The Ervin Ridge backcountry airstrip would be closed from December 1 to June 15.

The BLM would allow minimal hand maintenance of airstrips without prior approval, but maintenance would be limited to the area previously disturbed. The emphasis would be to keep the airstrips as backcountry airstrips, only suitable for landing aircraft equipped to use primitive airstrips. Mechanized maintenance, improvements, facilities or infrastructure (tie downs, wind socks, airstrip delineators, etc.) would require prior approval by the authorized officer.

All commercial aircraft landing in the Monument (planes, helicopters, hot air balloons, or ultralights) would be required to utilize specific authorized backcountry airstrips. Seasonal restrictions may apply to the commercial use of these airstrips. Commercial use would require prior authorization.

CHAPTER 1

INTRODUCTION

This chapter introduces the information discussed throughout the remainder of this document for the Upper Missouri River Breaks National Monument (Monument). Chapter 1 discusses why the Bureau of Land Management (BLM) is preparing this Draft Resource Management Plan and Environmental Impact Statement (RMP/EIS), how the public was and will continue to be involved in this planning process, how issues were defined and a number of other topics. The information in this chapter is organized into the following headings:

- Background
- Purpose and Need
- Planning Area
- Collaboration
- Planning Process
- Scoping
- Issues Addressed
- Issues Considered but Not Further Analyzed
- Planning Criteria
- Related Plans
- Relationship to BLM Policies, Plans, and Programs
- Vision and Management Goals
- Development of Alternatives
- Draft Resource Management Plan
- Final Resource Management Plan

Background

In May 1999, then Secretary of the Interior Bruce Babbitt floated a portion of the Upper Missouri National Wild and Scenic River (UMNWSR) and toured portions of the Missouri Breaks. During this trip, Mr. Babbitt commented that the BLM land in this area contained a remarkable variety of resources and opportunities and that perhaps the Department of the Interior (DOI) should consider some type of special management for these lands. His comments about special management started a dialogue among various organizations, individuals, state and county entities and the BLM about what special management could mean.

In August 1999, the Secretary of the Interior's office asked the Central Montana Resource Advisory Council (RAC) to develop and recommend broad guidelines, or a framework, to manage BLM land in the Missouri Breaks area (DOI News Release of July 23, 1999 and RAC 1999a).

In October and November 1999, the RAC hosted public meetings in Lewistown and Havre to provide opportunities for public comment about the concept of special manage-

ment for these lands (RAC 1999b, 1999c). In December 1999, the RAC forwarded a 16-page recommendation package to the Secretary of the Interior's office (RAC 1999d). This package outlined the RAC's interpretation of the public comments and offered recommendations for a number of resource programs, should the BLM land be designated for special management.

In May 2000, Mr. Babbitt hosted a public meeting at the University of Great Falls in Great Falls, Montana (Great Falls Tribune, May 3, 2000). The following day, Mr. Babbitt hosted a breakfast meeting in Fort Benton, Montana, and then flew over the Breaks to Lewistown, where he again met with a variety of organizations and individuals (Great Falls Tribune, May 5, 2000). These sessions were question-and-answer opportunities about special management of BLM land in this area.

The Monument was established on January 17, 2001, when President Clinton issued a Proclamation (Appendix A) under the provisions of the Antiquities Act of 1906. The Monument contains a spectacular array of biological, geological, and historical objects of interest (Appendix B). From Fort Benton downstream to the James Kipp Recreation Area, the Monument includes 149 miles of the Upper Missouri National Wild and Scenic River, the adjacent Breaks country, and portions of Arrow Creek, Antelope Creek, and the Judith River. The Monument also includes six wilderness study areas, the Cow Creek Area of Critical Environmental Concern, and segments of the Lewis and Clark National Historic Trail and the Nez Perce National Historic Trail. These objects, individually and collectively, in the context of the natural environment that supports and protects them, are the resources discussed throughout this document.

Purpose and Need

The Proclamation states the BLM will remain the managing agency for this Monument. This Draft RMP/EIS sets forth the vision, goals and management guidance for the objects for which the Monument was designated.

The Proclamation provides the basic management direction for this Monument and governs how the provisions of the Federal Land Policy and Management Act (FLPMA) will be applied to the Monument. FLPMA directs the BLM to manage public land on the basis of multiple use and "in a manner that will protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric,

water resources, and archaeological values.” The term multiple use, refers to the “harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment,” (43 USC 1702). Multiple use involves managing an area for various benefits, recognizing that the establishment of land use priorities and exclusive uses in certain areas is necessary to ensure that multiple uses can occur harmoniously across a landscape.

This Draft RMP/EIS provides a comprehensive plan for managing the Monument and site-specific, detailed plans for managing transportation and natural gas leases in a manner that protects the objects identified in the Proclamation, while recognizing valid existing rights. The Proclamation, FLPMA, National Environmental Policy Act (NEPA), Wild and Scenic Rivers Act, and other mandates provided the direction for preparing this Draft RMP/EIS.

Planning Area

The Monument includes about 375,000 acres of BLM land in northcentral Montana in Blaine, Chouteau, Fergus and Phillips Counties (Figure 1.1). The Monument generally corresponds with the Upper Missouri National Wild and Scenic River from Fort Benton downstream to approximately Arrow Creek, where the Monument begins to widen from 5 to 16 miles on either side of the Missouri River to the Charles M. Russell National Wildlife Refuge. Table 1.1 lists the Monument surface acres by county. Approximately 80,000 acres of private land and 39,000 acres of state land are intermingled with the Monument. The BLM has no jurisdiction over private or state land, and these lands are not part of the Monument.

Table 1.1
Surface Ownership by County

<i>County</i>	<i>Monument Surface Acres</i>
Blaine	150,239
Chouteau	40,386
Fergus	131,355
Phillips	52,683
Total Acres	374,663

Source: (BLM 2003a)

Collaboration

In 1999, the RAC established the Upper Missouri River RAC Subgroup to analyze the recreational activities on the UMNWSR and to make recommendations to the RAC

concerning future management opportunities for the river. Over the course of 3 1/2 years, the subgroup worked with the BLM and the University of Montana to generate high quality information concerning visitor expectations, resource conditions, and the potential to align recreation use with the objectives of landowners, residents, and businesses in the area. In January and March 2002, the subgroup presented a series of recommendations concerning a variety of people management issues on the UMNWSR, and many of the recommendations were approved by the RAC (RAC 2002a, 2002b). The subgroup translated its prior work into ideas that could be incorporated in the RMP and presented their recommendations in a May 2003 report to the RAC (RAC 2003).

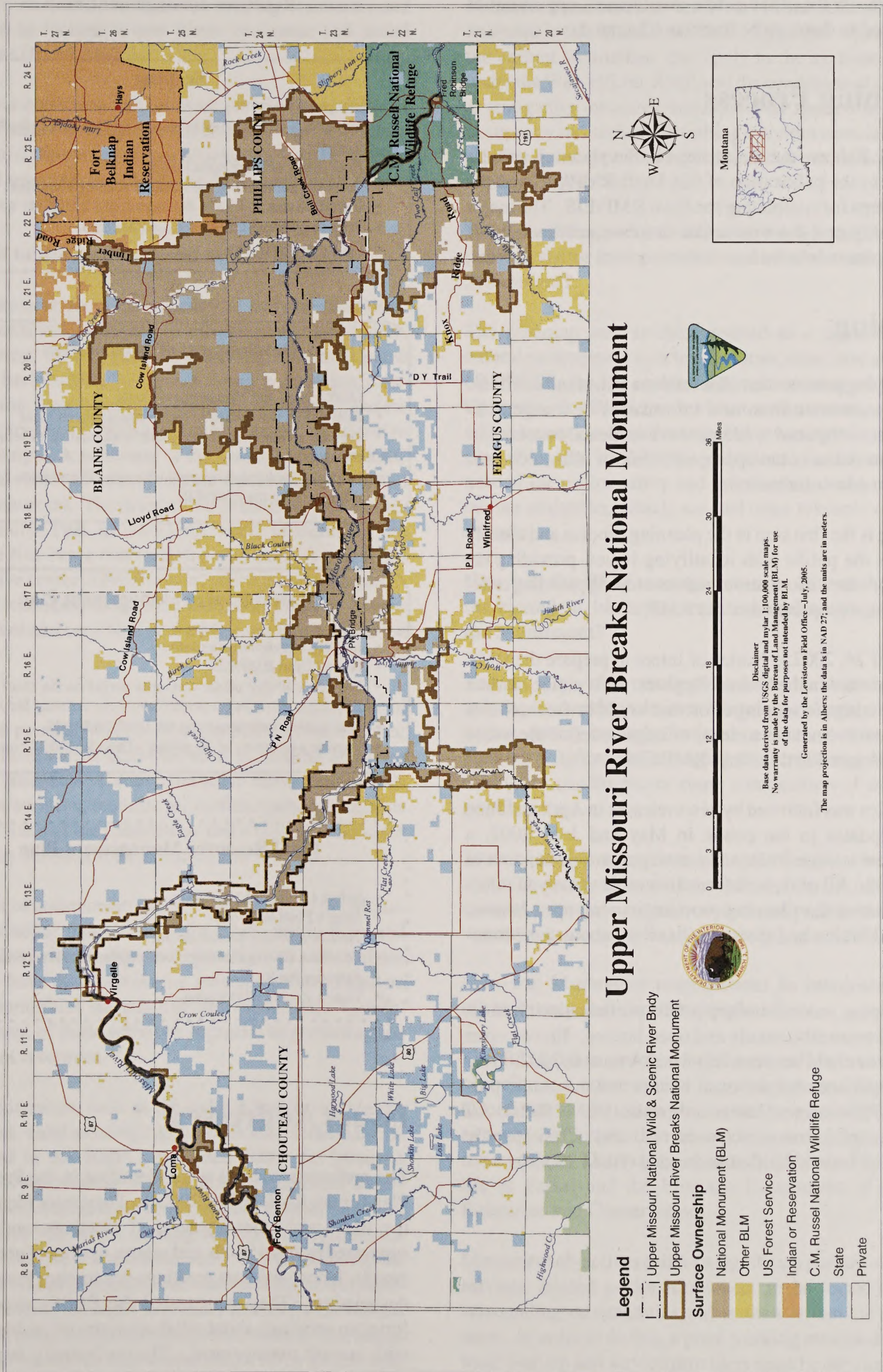
In 2001, Secretary of the Interior Gale Norton asked local officials for their ideas regarding federally mandated land use management plans for new national monuments. In response to this request, Montana Governor Judy Martz appointed a task force to develop recommendations for the Secretary of the Interior. The task force conducted three public meetings to gather public input and also solicited written comments. Approximately 1,700 letters were received. In August 2001, the Governor’s Task Force provided nine recommendations for the Secretary’s consideration (Montana 2001). These recommendations were considered during the development of this RMP/EIS. However, most were not within BLM’s authority and could not be addressed in the alternatives.

In the summer of 2002, the BLM invited state, local and tribal governments to partner in a cooperating agency relationship for developing the RMP/EIS. The State of Montana and Blaine, Chouteau, Fergus and Phillips Counties are cooperating agencies in all phases of its preparation, with BLM acting as the lead agency.

The Central Montana RAC continues to be involved in the preparation of the RMP/EIS. RAC members attended the scoping open houses in July and August 2002, to listen to the public discussions with resource specialists concerning issues related to managing the Monument. In July 2003, the RAC assisted the BLM by facilitating a public discussion on management opportunities during a series of alternative development workshops. The RAC appointed members to attend and participate in the monthly interdisciplinary team meetings. In February, April, June, September, and December 2004, the RAC reviewed the preliminary alternative for the Draft RMP/EIS and provided recommendations to the BLM.

Throughout preparation of the Draft RMP/EIS consultation and coordination have been important components of this planning effort. Public meetings, information mailings and individual contacts with other governmental agencies, American Indian tribes, interest groups and the general public were used to gather information for the Draft RMP/

Upper Missouri River Breaks National Monument



EIS. Consultation and coordination will continue throughout the review of the Draft and preparation of the Final RMP/EIS. A list of the public involvement opportunities conducted to date can be found in Chapter 5.

Planning Process

Figure 1.2 shows the major steps in the planning process that led to the publication of this Draft RMP/EIS and the future steps for completing the Final RMP/EIS. The major steps in Figure 1.2 are described in subsequent sections of this chapter.

Scoping

The scoping process identifies land use issues and conflicts. These issues stem from new information or changed circumstances, the need to address environmental concerns, or a need to reassess the appropriate mix of allowable uses based on new information.

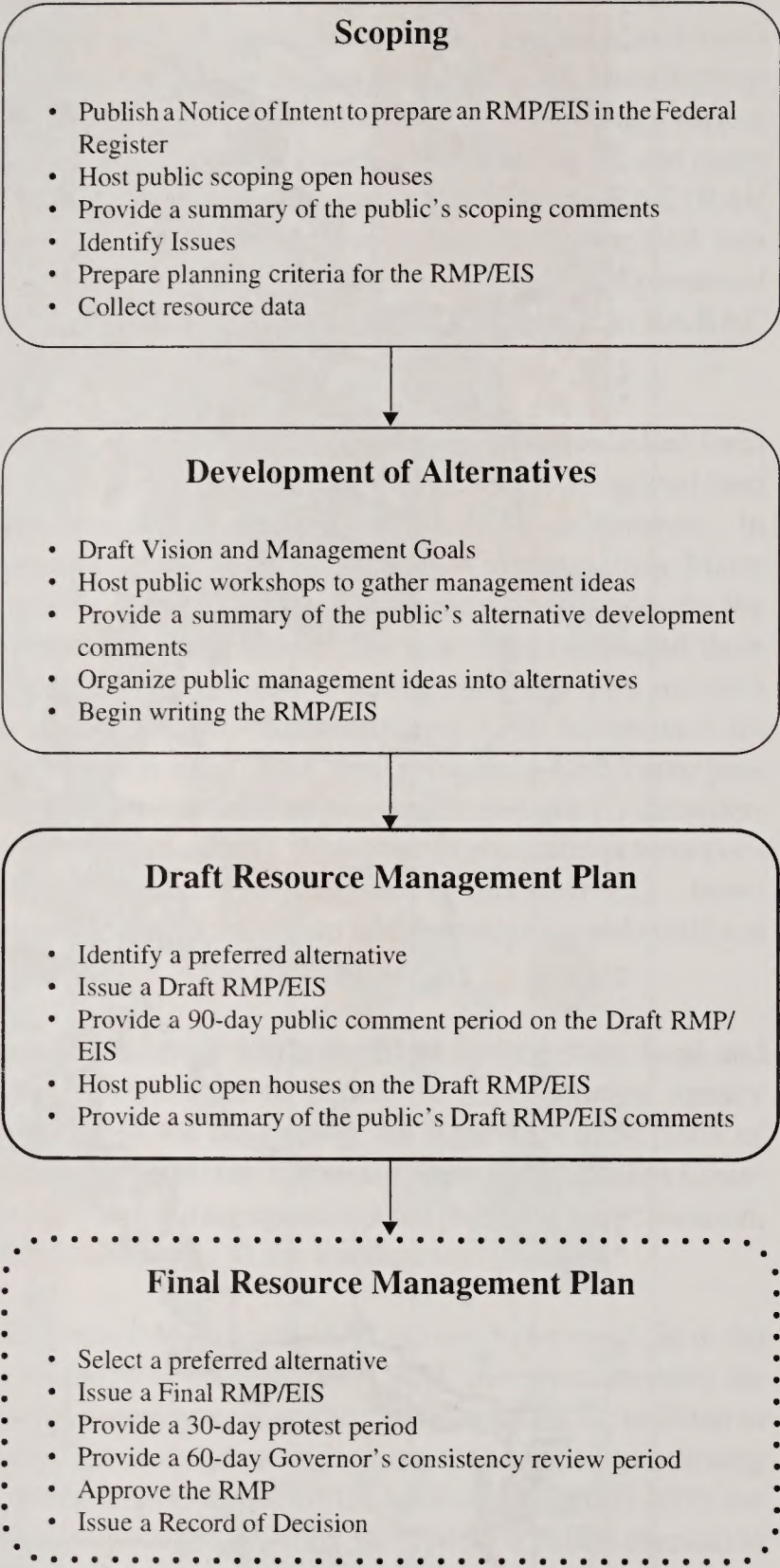
Scoping is the first step in the planning process and closely involves the public with identifying issues, providing resource or other information, and developing planning criteria to guide preparation of the RMP.

On April 24, 2002, a Notice of Intent to prepare the RMP was published in the Federal Register. This notice marked the beginning of a scoping effort that would invite extensive public involvement as a means of helping define the issues to be addressed in this Draft RMP/EIS.

The notice was followed by news releases in April and June 2002, updates to the public in May and June 2002, a newsletter in June 2002, and a newspaper-type handout in July 2002. All of these information tools conveyed information about the planning process, scoping open houses, potential issues and questions/answers about the Monument.

The scoping process invited public participation through written comments, emails and open houses. Eleven open houses were held between July 8 and August 6, 2002. Over 320 people attended the open houses and the public provided 5,700 comment letters and emails (BLM 2002a). All of the scoping comments were read and 1,766 specific comments were identified and coded (BLM 2002b).

Figure 1.2
Steps in Preparing the
Resource Management Plan



Issues Addressed

The preliminary issues were identified in the Preparation Plan for the RMP (BLM 2002c). They were identified by the BLM and other agencies at meetings, and/or were suggested by individuals and groups by way of phone calls, emails, letters and past meetings concerning the proposed designation. They represented the BLM's expectations (prior to scoping) about what concerns or problems exist with current management. The preliminary issues were

included in a June 2002 newsletter, and displayed during the scoping open houses in July and August 2002. They were then modified based on the scoping comments and expanded to include a new issue: economic and social conditions (BLM 2002a).

From data collection and analysis perspectives, some of these six issues overlap one another, and each contains a number of different sub-issues which address more specific uses and resources related to the topic. Appendix C presents more detailed information about these issues.

How will human activities and uses be managed?

The Monument provides a variety of activities and uses. Recreational activities include motorized and non-motorized touring; upland game bird and big and small game hunting; backpacking; horseback riding; sightseeing; pleasure driving; river floating; motorized river boating; and the backcountry use of small fixed-wing aircraft on primitive landing strips. A subgroup of the Central Montana RAC addressed visitor use recommendations for the river portion of the Monument. The designation of the Bear Paw Battlefield National Park in 2005, may result in increased use along the Nez Perce National Historic Trail. A new BLM interpretive center in Fort Benton, which is under construction and scheduled to open in 2006, will focus on Monument values and uses both on the Missouri River and in the uplands.

Commercial guides and outfitters, operating under special recreation permits from the BLM, provide services related to some recreational activities such as hunting and river floating. Increased visitation has led to increased demands for visitor services, requests for outfitter permits, requests for aerial tours of the Monument, and a higher demand for emergency services such as search and rescue.

A number of non-recreational uses also occur in the Monument, including rights-of-way for roads, utility lines and communication sites, livestock grazing, etc. All of these activities have an effect on the area environment and on local communities surrounding the Monument. Careful management of these activities is crucial to protecting the Monument resources.

In some instances, such as oil and gas leasing within the Monument, valid existing rights are in effect and must be recognized in the RMP. In March 2000, the Montana Wilderness Association filed suit challenging BLM's issuance of three of these leases, alleging the BLM did not fully comply with NEPA, the Endangered Species Act, and the National Historic Preservation Act. In March 2004, the Montana Federal District Court ruled in favor of the plaintiffs and ordered the BLM to prepare an EIS for the oil and gas leasing program that covers the three leases. The leases involved in the suit, as well as nine others in the Monument,

were based on the BLM's 1988 West HiLine RMP. In light of the court's ruling, the BLM believes all 12 leases in the Monument and based on the West HiLine RMP should be analyzed in this Monument RMP. This RMP will consider the current stipulations that apply to the 12 leases issued under the West HiLine RMP, and the conditions of approval or mitigating measures that should be applied to surface occupancy and surface-disturbing activities associated with all 43 oil and gas leases in the Monument, which cover about 42,000 acres.

What facilities and infrastructure are appropriate to provide visitor interpretation and administration of the Monument?

The planning area is characterized as a predominantly natural environment with few facilities, other than along the UMNWSR, for the comfort and convenience of visitors. Currently, the BLM has a visitor contact station and an office located in Fort Benton, and a variety of recreation sites along the UMNWSR. Additional facilities may be needed for visitor safety and information, and to address human sanitation, vehicle use and other resource uses and impacts.

How will the BLM manage resource uses and protect the biological, historical, cultural, and visual values of the Monument?

Various ways of protecting resources include enforcing existing laws and regulations, educating visitors, managing access, setting management and research priorities, suppressing wildfires and managing fuels, restoring degraded ecological conditions, or some combination of these approaches.

Some of the Monument's major resources for which management decisions must be made by the BLM include cultural, recreation, riparian communities, vegetation and water resources, as well as biodiversity and wildlife habitat.

How will Monument management be integrated with other agency and community plans?

The BLM has a strong commitment to work with other agencies and communities in managing the Monument. Coordination with state agencies that have jurisdiction over resources within the Monument is essential for effective management. These agencies include Montana Fish, Wildlife & Parks, and the Montana Department of Natural Resources and Conservation.

Monument objectives call for a significant portion of visitor services related to the Monument to be located in the surrounding communities rather than within the Monument. In order to do this, a good working relationship with local tourism and service providers must be developed and

maintained. Agreements with the local counties and communities for coordinating activities and needs such as planning, transportation, emergency services (i.e., search and rescue), law enforcement, infrastructure and tourism need to be explored.

How will transportation and access be managed?

A network of local, collector and resource roads currently provides access to many areas of the Monument. County roads are routinely graded and maintained by Blaine, Chouteau, Fergus and Phillips Counties, while BLM-managed routes receive various levels of maintenance based on a BLM maintenance schedule.

How will Monument management affect economic and social conditions in the area?

The Monument can provide tourism, hunting, and other forms of recreation while bolstering the economy of Montana. Monument management must recognize the continuation of existing land ownership and the economic activities that are dependent on the land and its natural resources.

Issues Considered but Not Further Analyzed

Scoping also identified 30 issues, topics, or questions that can be addressed by current management, BLM policy, administrative action, or that were beyond the scope of this RMP/EIS. Some of these issues are summarized below, while Appendix D offers more detail about all 30 of these issues, topics and questions.

Livestock are adversely impacting riparian and upland health.

The Proclamation affirms that “Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument.” The Standards for Rangeland Health and Guidelines for Livestock Grazing Management were established in 1997, and apply to all BLM land in northcentral Montana, including the Monument. Standard No. 1 established the indicators for healthy upland areas that contribute to proper functioning conditions in the uplands. Standard No. 2 established the indicators for healthy riparian areas that contribute to proper functioning conditions in riparian and wetland areas. In addition, grazing management guidelines specifically emphasize management practices that would maintain and/or improve rangeland health.

The watershed planning and grazing permit/lease renewal process assessed the impact of livestock grazing on the Standards for Rangeland Health, as well as other resource management goals. Part of the assessment process included reviewing allotments for their suitability for grazing, stocking levels, seasons of use, duration of grazing and other grazing management practices and their impact on other resources. When livestock grazing was identified as a cause for not meeting standards or resource management goals, corrective actions were identified. The results of standards assessments and the corresponding corrective actions can be found in the watershed plans. Not all implementation actions occur immediately because of funding and resources available. Through ongoing monitoring and adaptive management strategies, implementation is continuing. Grazing management is discussed further in Chapters 2 and 3 under Vegetation – Native Plants and Vegetation – Riparian.

Management of the Monument needs to recognize the need for adequate funding, including enforcement and interpretation activities. Does the BLM have the capability to implement a management plan for the Monument?

Decisions from an RMP would be implemented over a period of years depending on budget and staff availability. Enforcement and education to protect the values of the Monument will be part of this implementation. Funding levels affect the timing and implementation of management actions and project proposals, but do not affect the decisions made in an RMP. In Fiscal Year 2005, the Monument was managed with a staff of 21 individuals, which includes five seasonal employees, along with support from seven individuals from other BLM offices (this does not include other support services such as procurement, engineering, information resources, fire, etc.). This issue is addressed by BLM policy and budgets during implementation.

How will the quality of the river experience be maintained or improved relative to supersonic flights and sonic booms?

The Monument is located beneath the Hays Military Operations Area (MOA). The Hays MOA overlies a large portion of northcentral Montana at altitudes ranging from 300 feet above ground level, up to 18,000 feet above mean sea level. The Federal Aviation Administration has the responsibility to plan, manage, and control the structure and use of all airspace over the United States, including the Hays MOA. This issue is beyond the scope of the RMP since the BLM has no jurisdiction or authority for this MOA.

How should the communities near the Monument prosper with management of the Monument?

The BLM has a strong commitment to work with communities in managing the Monument, including activities and needs such as planning, transportation, emergency services, law enforcement, infrastructure, and tourism. Throughout the RMP, opportunities to work with private landowners and surrounding communities have been identified and we can assess effects to communities from our activities. However, preparation of specific community economic development plans is beyond the scope of this RMP.

Leave private land out of the Monument.

The Proclamation designating the Monument applies to “all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map” The BLM has no jurisdiction over private land.

What is the BLM’s authority to regulate recreational activities on the Upper Missouri National Wild and Scenic River, including recreation user fees and motorized watercraft restrictions?

FLPMA gives the BLM general authority to regulate and enforce the occupancy and use of the public lands through permits and fees (43 USC § 1732(b), 1733 (1994)). Through 2004, the Land and Water Conservation Fund Act of 1964 empowered the BLM to issue Special Recreation Permits (SRPs) according to its own procedures and fee schedules (16 USC § 460l-6a(c) (1994)). These SRPs help manage group activities, recreation events, motorized recreation vehicle activities, and other special recreation uses in accordance with procedures at fees established by the agency involved.

The Federal Lands Recreation Enhancement Act (FLREA) of 2004 gives the Secretary of the Interior authority to issue SRPs and charge fees connected to issuing those permits. This authority began in 2005, and applies to group activities, recreation events and motorized vehicle use activities on federal recreational lands and waters. This act replaces the BLM authority to charge fees under the Land and Water Conservation Fund Act.

Bureau regulations (43 CFR 2930) require SRPs for all commercial uses on the public lands and waters that the BLM manages, including permits for any uses in special areas such as wild and scenic rivers. The BLM can manage, require and enforce permits and fees within a wild and scenic river to protect the river values, even if the river users do not set foot upon BLM land (63 IBLA at 381-82). Management activities and enforcement are designed to protect public lands, property, users, occupants, resources, and activities on or having a clear potential to affect lands adjacent to BLM land or related waters.

Planning Criteria

The BLM planning regulations (43 CFR 1610.4-2) require planning criteria to guide preparation of the RMP. Planning criteria are the constraints or ground rules that guide and direct the preparation of the plan. They ensure the plan is tailored to the identified issues and that unnecessary data collection and analyses are avoided.

The following criteria were developed based on applicable laws and regulations, agency guidance, and the result of public comment.

- This Draft RMP/EIS will be completed in compliance with FLPMA and NEPA and all other applicable laws. It will meet the requirements of the establishing Proclamation to protect the Monument’s cultural features and natural resources.
- The Upper Missouri River Breaks National Monument planning team will work cooperatively with the State of Montana, tribal governments, county and municipal governments, other Federal agencies, and all other interested groups, agencies, and individuals. Public participation will be encouraged throughout the process.
- The Monument RMP/EIS will not address boundary adjustments. Boundaries were established by the President and cannot be adjusted administratively by the BLM.
- The management plan will establish the guidance upon which the BLM will rely in managing the Monument.
- The Monument RMP/EIS will emphasize the protection and enhancement of the Monument’s natural resources and emphasize the BLM’s mission to serve the diverse outdoor recreation demands of visitors while helping them to maintain the sustainable conditions needed to conserve their lands and their recreation choices. (BLM 2003b)
- The Monument RMP/EIS will recognize valid existing rights and outline the process the BLM will use after completion of the management plan to address existing mining claims, or to address applications for other land use authorizations. The RMP will include a natural gas development plan.
- The lifestyles and concerns of area residents, including grazing and ranching, will be recognized in the plan.
- Any lands located within the Monument’s administrative boundary, which are acquired by the BLM to accomplish purposes for which the Monument was

designated, will be managed consistent with the Monument RMP/EIS, subject to any constraints associated with the acquisition.

- The plan will recognize the state's responsibility and authority to manage wildlife. The BLM will consult with Montana Fish, Wildlife & Parks as necessary.
- The Monument RMP/EIS will include a transportation plan that addresses transportation and access, and will identify where better access is warranted, where access should remain as is, and where less access is appropriate to protect Monument resources.
- The management of grazing is regulated by laws and regulations other than the Monument Proclamation. The plan will incorporate the Standards for Rangeland Health and Guidelines for Livestock Grazing Management as established in recently implemented watershed and/or activity plans.
- The planning process will provide the opportunity to involve American Indian tribal governments and will provide for the protection of traditional values and traditional cultural properties.
- Decisions in the Monument RMP/EIS will strive to be compatible with the existing plans and policies of adjacent local, state and federal agencies as long as the decisions are consistent with the purposes, policies, and programs of federal law and regulations applicable to public lands.

Related Plans

This section discusses other plans that are germane to the development of this RMP. The BLM planning regulations require that RMPs be "...consistent with officially approved or adopted resource-related plans, and the policies and programs contained therein, of other Federal agencies, State and local governments and American Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies and programs of Federal laws and regulations applicable to public lands..." (43 CFR 1610.3-2(a)).

Management actions identified in the alternatives are not known to be inconsistent with other planning documents.

Chinook-Blaine County Comprehensive Plan (1979)

The comprehensive plan provides information on population, projected land needs for residential growth, land use, public facilities, natural resources, and land use problems. The plan also provides land use policy recommendations

for land use, public investments, and local governmental administrative policy changes.

Heartland Montana Economic Development Plan: 1987-1992 for Lewistown/Fergus County (1987)

The economic development plan provides information on the economy, including population and basic industries, resources, and constraints to realizing development potential. The plan also provides business objectives and a community vision.

Black-footed Ferret Recovery Plan (1988)

The plan outlines steps for recovery of the black-footed ferret throughout its historical range. A six-step process is outlined beginning with ensuring success of captive breeding, locating reintroduction habitat, finding other populations of ferrets, devising release strategies, managing reintroduced and other populations, and building programs for public support of the recovery effort.

Fergus County Land Use Policy (1992)

The policy is the county land use plan developed by the Fergus County government to guide the use of lands and resources in Fergus County and to protect the rights of private landowners. The nature and intent of Fergus County's land use policy is to protect the customs and cultures of county citizens through protection of private property rights, the facilitation of a free market economy and the establishment of a process to ensure self-determination by Fergus County residents. A Fergus County Growth Plan is in progress.

Recovery Plan for the Pallid Sturgeon (1993)

The recovery plan describes the distribution, status, life history, and habitat-association information that is known about the pallid sturgeon. The plan provides the short- and long-term recovery objectives and actions needed to achieve recovery of the pallid sturgeon.

Montana Bald Eagle Management Plan (1994)

The plan provides landowners and resource managers with information on the biology of bald eagles and management guidelines to allow informed decisions about land use to help conserve the species and its habitat.

Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana (2002)

The goal of this conservation plan for the State of Montana is to provide for management of prairie dog populations and habitats to ensure long-term viability of prairie dogs and associated species.

Chouteau County Growth Policy Plan (2004)

The plan includes a framework of goals and policies, and an implementation program which outlines specific action steps that are derived from the goals and policies.

Management Plan and Conservation Strategies for Sage Grouse in Montana – Final (2005)

The plan is designed to provide biological information, identify information gaps, and facilitate data collection required for future resource management decisions. It establishes a process to achieve sage-grouse management objectives and provides a framework to guide local management efforts. Regional or local groups will adapt the statewide plan to develop and implement strategies in respective geographic areas that will improve or maintain the sagebrush steppe and reduce or mitigate factors that may further reduce habitats or populations.

Relationship to BLM Policies, Plans, and Programs

A number of BLM plans relate to or otherwise govern management in the Monument. These plans are considered by the BLM when implementation-level planning is conducted or other specific actions are analyzed. These plans are listed below and provide a perspective of the many management considerations pertinent to the Monument.

Missouri Breaks Grazing Environmental Impact Statement (1979)

This plan addresses the grazing management program in the Missouri Breaks area of central Montana. This EIS involves nearly 2.2 million acres of BLM land, including most of the Monument.

Prairie Potholes Environmental Impact Statement (1982)

This plan addresses the grazing management program in the prairie potholes area of northern Montana. This EIS involves about 1.75 million acres of BLM land, including some BLM land on the north side of the Missouri River in the Monument.

Northwest Area Noxious Weed Control Program Final Environmental Impact Statement (1985)

This plan describes and analyzes the environmental impacts of implementing a program for controlling noxious weeds on BLM land in the states of Idaho, Montana, Oregon, Washington, and Wyoming. Control methods include chemical, manual, mechanical, and biological.

Missouri Breaks Wilderness Suitability Study Environmental Impact Statement (1987)

This plan addressed the environmental consequences of managing 12 wilderness study areas (WSAs) as wilderness or nonwilderness, including the six WSAs in the Monument.

Montana Statewide Wilderness Study Report (1991)

This plan provides the wilderness recommendations for 36 WSAs in Montana, including the six WSAs in the Monument.

Vegetation Treatment on BLM Lands in Thirteen Western States (1991)

This plan assesses the environmental consequences of implementing a vegetation treatment program to manage a variety of vegetation species on BLM land in the Western United States. The vegetation treatment methods include manual, mechanical, biological, prescribed burning, and chemical.

Nongame Migratory Bird Habitat Conservation Plan (1992)

This plan provides for managing nongame birds that migrate to the tropics or use neotropical habitats. The overall intent is to reverse the decline in some bird populations and to implement a proactive program for other migratory species.

Upper Missouri National Wild and Scenic River Management Plan Update (1993)

This plan provides management direction for the Upper Missouri National Wild and Scenic River. It identifies priority and site-specific locations for implementing management actions to address visitor use.

Standards for Rangeland Health and Guidelines for Livestock Grazing Management (1997)

This plan documents the effects of adopting regional Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM land in Montana, North Dakota and South Dakota. Standards are physical or biological conditions or functions required for healthy, sustainable rangelands. Guidelines are management practices or methods which help ensure that standards can be met or significant progress can be made toward meeting standards.

Watershed and Landscape Plans (1998 – 2005)

Eight watershed or landscape plans were completed in the

last 8 years which address implementation of Standards for Rangeland Health and Guidelines for Livestock Grazing Management. These plans include riparian-wetland objectives and methods for achieving those objectives on Monument lands.

Fire/Fuels Management Plan Environmental Assessment/Plan Amendment for Montana and the Dakotas (2003)

This Monument RMP/EIS will implement the National Fire Plan and 2001 Federal Fire Policy in Montana, North Dakota and South Dakota, and provide general guidance for fire management (including both fire suppression and fuels management) needed to protect other resource values.

Vision and Management Goals

The BLM's vision is to manage the Monument in a manner that maintains and protects its biological, geological, visual and historic objects and preserves its remote and scenic character. The RMP will incorporate the Proclamation, multiple use and existing laws, while recognizing valid existing rights and authorizations, and providing diverse recreational opportunities.

A number of management goals guided the development of alternatives for this RMP. These goals are the result of information provided through public scoping, existing laws and regulations, the Proclamation, and the planning team. These goals include:

- Manage visitor use and services on these BLM lands in a manner that protects Monument values and resources.
- Manage these BLM lands in a multiple use manner consistent with the Proclamation and all current law and policy.
- Manage legal and physical access to and within the Monument to provide opportunities for diverse activities.
- Manage these BLM lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes.
- Manage these BLM lands in a manner that provides a healthy ecosystem supporting plant and animal species and achieves a sustainable variation of native vegetation communities.
- Manage these BLM lands in a manner that provides current and future generations with the social and economic benefits compatible with the Proclamation.

- Manage these BLM lands in a manner that involves the public and collaborating agencies (local, state, federal and tribal) at every opportunity.

These management goals are discussed in more detail in Appendix E.

Development of Alternatives

The scoping results, the issues to be addressed, the planning criteria and legislative restraints, related plans, and the vision and management goals all helped define the scope of possible alternatives that will be carried forward throughout the planning process.

Management strategies aimed at providing viable options for addressing the planning issues were then developed. These strategies were developed through a public process with newsletters, briefings, and alternative development workshops to inform the public of their opportunities to participate and to provide input. Eleven workshops were held in July 2003. Over 7,000 comments on management options were received (BLM 2004a). The management strategies provided the building blocks from which the general management scenarios and eventually, the more detailed management alternatives were developed.

As alternatives were being developed, it became necessary to organize the volume of public comments, resource inventories and resulting analyses into these four categories which will be carried forward throughout this Draft RMP/EIS:

- Health of the Land and Fire
- Visitor Use, Services and Infrastructure
- Natural Gas Exploration and Development
- Access and Transportation

As a result of a Federal District Court ruling in March 2004, which required the BLM to prepare an EIS for three oil and gas leases issued under the West HiLine RMP, the BLM decided to expand this RMP/EIS analysis to include 12 West HiLine leases located in the Monument. The BLM went back to the public in November 2004, for input on developing alternatives for the 12 leases. That public process included news releases, an update and newsletter to the mailing list, and six public meetings to provide opportunities for public participation. A total of 5,700 comments were received (BLM 2005). An analysis of those public comments was included in the development of the range of alternatives for the 12 West HiLine oil and gas leases, which are incorporated into this Draft RMP/EIS.

Draft Resource Management Plan

Six alternatives for managing the Monument, including a “no action” alternative (current management), are described in this Draft RMP/EIS.

The alternatives describe various ways the provisions of the Proclamation would be applied to managing this Monument. Each alternative has a somewhat different emphasis, primarily defined in terms of resource focus, but all maintain and protect the biological, geological and historical objects.

Public involvement will continue following the issuance of this Draft RMP/EIS. The BLM will provide a 90-day public comment period and will host a series of open houses in the same communities where the scoping open houses and alternative development workshops were held, and potentially in other communities as requested.

Final Resource Management Plan

Following the 90-day public comment period on this Draft RMP/EIS, the comments will be analyzed and a Final RMP/EIS will be prepared and released to the public in the summer of 2006. A 30-day protest period and 60-day Governor’s consistency review period will be provided following publication of the Final RMP/EIS. At the end of the protest period and Governor’s consistency review, the BLM may issue a Record of Decision (ROD) approving implementation of any portion of the proposed RMP not under protest. Approval would be withheld on any portion of the plan under protest until the protest has been resolved. Decisions on road designations may be appealed to the Interior Board of Land Appeals (IBLA) following the publication of the ROD. The ROD will include information on the appeal process.

General Description of Each Alternative

The six alternatives are described in this section. Each alternative is a management plan for the Monument. The alternatives are described in this section. Each alternative is a management plan for the Monument.

Alternative A (Current Management)

Alternative A is the current management plan for the Monument. It is the baseline for the other alternatives.

Alternative B

Alternative B is a management plan for the Monument. It is a management plan for the Monument.

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CHAPTER 2

ALTERNATIVES

Introduction

This chapter details six different alternatives for managing the Upper Missouri River Breaks National Monument (Monument) to meet the vision and management goals and address the issues discussed in Chapter 1. Each alternative represents a reasonable set of objectives and actions to guide future management of the Monument. Chapter 2 is presented in six sections:

- General Description of Each Alternative
- Decisions Common to All Alternatives
- Current Management and Action Alternatives
- Alternatives Considered but Not Analyzed in Detail
- Comparison of Alternatives
- Comparison of Impacts

The guidance found in the Decisions Common to All Alternatives section has been carried forward from existing laws, regulations, policy, and previous planning efforts, primarily the West HiLine Resource Management Plan (RMP) (BLM 1988, 1992a) and the Judith-Valley-Phillips RMP (BLM 1994a). In the Monument, the West HiLine RMP includes BLM land in the Upper Missouri National Wild and Scenic River (UMNWSR) and north of the river in Chouteau and Blaine Counties (222,000 acres). The Judith-Valley-Phillips RMP includes BLM land south of the UMNWSR in Chouteau and Fergus Counties and north of the UMNWSR in Phillips County (153,000 acres). The Decisions Common to All Alternatives, combined with current management or any of the action alternatives, will form the management plan for the Monument.

General Description of Each Alternative

The six alternatives provide a reasonable range of management options to resolve the issues identified for the Monument. The alternatives provide a range of more-intensive to less-intensive management. The following brief descriptions provide an overview of the alternatives developed and some of the unique aspects of each.

Alternative A (Current Management)

Alternative A emphasizes continuing the management activities that already occur in the Monument. These activi-

ties are now governed by the West HiLine RMP (BLM 1988, 1992a), Judith-Valley-Phillips RMP (BLM 1994a), Upper Missouri National Wild and Scenic River Management Plan Update (BLM 1993) and the State Director's Interim Guidance for Managing the Monument (BLM 2001a) to the extent these plans are consistent with the Proclamation. This is the "no action" alternative which would create no change from the current management direction.

Under this alternative motorized use on the river would continue with the seasonal limitations on upstream travel and a no-wake speed restriction in the wild and scenic segments of the UMNWSR. The number of boaters on the river would not be limited and no allocation system would be developed. About 579 miles of roads would be open to motorized travel either yearlong or seasonally and 10 backcountry airstrips would remain open.

Current stipulations would apply to the 12 West HiLine oil and gas leases, and conditions of approval for applications to drill natural gas wells would be developed and considered on a case-by-case basis during the permitting process on all 43 oil and gas leases. Under this alternative, it is foreseeable that 35 wells could be drilled on these leases in the Monument.

Alternative B

Alternative B emphasizes more intensive recreation and transportation management. Resource management activities would allow camping facilities and interpretive sites at varying levels to enable visitors to experience both the natural and historic benefits of this Monument, while ensuring that resource protection is not compromised.

Under this alternative, motorized use on the river would be allowed yearlong on all segments. The number of boaters on the river would not be limited and no allocation system would be developed. About 538 miles of roads would be open to motorized travel either yearlong or seasonally and 10 backcountry airstrips would be designated open.

Alternative B would be the least restrictive alternative concerning oil and gas activity. Under this alternative, conditions of approval would protect the objects for which the Monument was designated. Under this alternative, it is foreseeable that 44 natural gas wells could be drilled on the existing leases in the Monument.

Alternative C

Alternative C would emphasize providing visitors with opportunities to experience the Monument. This alternative is distinguished from Alternative B in that it would more readily identify and accommodate changing conditions over time through the application of management decisions responsive to these changing conditions. This alternative provides more flexibility to respond to increasing visitation and risks to resources that could occur over time.

Under this alternative, motorized use on the river would be allowed with seasonal limitations on upstream travel and a no-wake speed restriction in the wild and scenic segments. Standards and indicators would be used to manage boaters on the river and impacts to resources, and no allocation system would be developed. About 501 miles of roads would be open to motorized travel either yearlong or seasonally and seven backcountry airstrips would be designated open.

Management of oil and gas operations would be more restrictive under this alternative, allowing less activity to occur than Alternatives A, B and F. Existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the Monument was designated. Under this alternative, it is foreseeable that 28 natural gas wells could be drilled on the existing leases in the Monument.

Alternative D

Alternative D would also emphasize providing visitors with opportunities to experience the Monument, but in a more self-directed fashion. This alternative differs from Alternative C in that it would limit certain activities now rather than applying management decisions responsive to changing conditions.

Under this alternative, motorized use on the river would be allowed with seasonal limitations on upstream travel and a no-wake speed restriction in the wild and scenic segments. Standards and indicators would be used to manage boaters on the river and impacts to resources and an allocation system would be developed when those standards and indicators are exceeded. About 330 miles of roads would be open to motorized travel either yearlong or seasonally and six backcountry airstrips would be designated open.

Management of oil and gas operations would be more restrictive under this alternative, allowing less activity to occur than Alternatives A, B, C and F. Existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the Monument was designated. Under this alternative, it is

foreseeable that 13 natural gas wells could be drilled on the existing leases in the Monument.

Alternative E

Alternative E would emphasize the natural condition and place the most limitations on visitors and other activities. Subtle forms of resource management and monitoring would minimize intervention into natural processes.

Under this alternative, motorized use would not be allowed on any segment of the river. An allocation system would be developed to manage boaters on the river and impacts to resources. About 105 miles of roads would be open to motorized travel either yearlong or seasonally and no backcountry airstrips would be designated open.

Management of oil and gas operations would be most restrictive under this alternative, allowing no activity to occur on the existing leases within the Monument. Surface disturbance would not be allowed on the 12 West HiLine oil and gas leases (the entire leasehold) or the other 31 existing oil and gas leases. Under this alternative, it is foreseeable that no natural gas wells would be drilled on these leases in the Monument.

Alternative F (Preferred Alternative)

Alternative F would emphasize providing visitors with opportunities to experience the Monument. This alternative would readily identify and accommodate changing conditions over time through the application of management decisions responsive to these changing conditions. This alternative provides more opportunities for adaptive management to respond to increasing visitation and risks to resources that could occur over time.

Under this alternative, motorized use on the river would be allowed with seasonal limitations on upstream travel and a seasonal no-wake speed restriction in the wild and scenic segments of the UMNWSR. In addition, the wild and scenic segment from Holmes Council Island to Fred Robinson Bridge would be restricted to non-motorized watercraft from June 5 to September 15. Standards and indicators would be used to manage boaters on the river and impacts to resources and no allocation system would be developed. About 378 miles of roads would be open to motorized travel either yearlong or seasonally and six backcountry airstrips would be designated open yearlong or seasonally.

Management of oil and gas operations would be more restrictive under this alternative, allowing less surface-disturbing activity than Alternatives A or B. Existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects for which the

Monument was designated. Under this alternative, it is foreseeable that 34 natural gas wells could be drilled on the existing leases in the Monument.

Decisions Common to All Alternatives

An adaptive management approach will be used for the Monument. Adaptive management is a process for continually improving management practices by learning from the outcomes of operational programs and recognizing, in advance, that adjustments may be necessary to achieve management goals. This approach will recognize biological uncertainty in the Monument, while accepting the need to proceed on the basis of the best available knowledge. The approach will include both monitoring and research to learn from our management guidance so subsequent improvements can be made in management programs.

Air Quality

The BLM’s goal is to maintain the Monument as a Class II airshed.

Management will minimize or prevent air quality degradation. The BLM will comply with federal and state air quality standards (Appendix F) and Standard for Rangeland Health #4 which requires that air quality meets Montana state standards. Existing air quality will be protected by the use of Best Management Practices (BMPs) (Appendix G).

The Monument is part of an area that is designated as a Prevention of Significant Deterioration (PSD) Class II area by the State of Montana under the 1977 Amendments to The Clean Air Act. Class II limits allow for moderate, well-controlled growth. Table 2.1 shows the allowable PSD increases for a Class II area.

Implementation

Federal and state regulations require air quality monitoring for activities which could degrade existing air quality. Detailed monitoring and mitigation plans will be developed when an environmental analysis is prepared for a proposed action that could degrade air quality.

All BLM actions and use authorizations will be designed with measures to protect the Class II designation in the Monument. These measures generally require actions during specific wind conditions to either disperse smoke or prevent chemical spray drift.

Table 2.1. Federal Prevention of Significant Deterioration Allowable Increments for Class II	
Allowable Increments (micrograms per cubic meter)	
Particulate Matter	
Annual Arithmetic Mean	17
Maximum 24-Hour	30
Sulfur Dioxide	
Annual Arithmetic Mean	20
Maximum 24-Hour	91
Maximum 3-Hour	512
Nitrogen Dioxide	
Annual Arithmetic Mean	25

Cultural Resources

The BLM’s goal is to preserve historic and cultural values and sites by enhancing public awareness or protection of the resources.

The Proclamation discusses the importance of the Monument’s archaeological and historical resources. The Lewis and Clark and Nez Perce National Historic Trails, teepee rings and abandoned homesteads are also mentioned. The Proclamation states, “Remnants of this rich history are scattered throughout the Monument, and the river corridor retains many of the same qualities and much of the same appearance today as it did then.” The Proclamation further states, “Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.”

Archaeological and historical sites, historic landscapes and legal traditional public uses will be preserved to the extent practical and consistent with other Monument goals. The authorization of archaeological and historical investigations along with the interpretation of some cultural sites is addressed under the Visitor Use, Services and Infrastructure section of the alternative descriptions later in this chapter.

The BLM will seek to preserve the objects of the Monument for the benefit of scientific and sociocultural use for present and future generations.

The primary management objectives are to properly manage the cultural resources under BLM jurisdiction through a systematic program of identification and evaluation, and to reduce the level of conflict between cultural resources

and other land and resource uses. All cultural resources within the area are segregated into management objectives. These objectives include managing for information potential, managing for public values and managing for conservation.

Cultural resources which contain significant information on the prehistory and history of the area will be managed for their information potential. These are cultural properties that consist of artifacts and features on the surface or buried that have the potential to yield important information.

Cultural resources that possess sociocultural, educational and recreational attributes will be managed for their public values. These include cultural resources associated with traditional American Indian cultural values, and prehistoric or historic cultural properties which exhibit interpretive and/or recreational potential. Managing cultural properties used by American Indians will focus on avoiding uses incompatible with traditional values.

Special or unique cultural resources will be managed for their public values and conservation. These include cultural properties that contain sensitive prehistoric religious features such as medicine wheels or burials; cultural properties that are of a nature that would not permit current archaeological technology to adequately investigate the property; and cultural properties that are rare in the area.

Implementation

The BLM will ensure that all proposed actions, initiated or authorized by the BLM, avoid damage to federal and non federal cultural resources. The BLM will determine, based on inventory and evaluation data, whether the proposed action will impact important cultural resources and, if necessary, take steps to avoid or mitigate possible impacts.

The BLM will consult with American Indian tribes when its actions have the potential to affect areas of concern to the practitioners of traditional religions. The activities of concern are those which might degrade the visual or aesthetic nature of an area, or cause the loss of plant species or other resources important to American Indians. The BLM is required to consult with traditional religious practitioners on policies and procedures to determine if changes are needed to ensure that such rights and freedoms are not abridged by agency practices.

Those traditional cultural properties that are at least 50 years old require consideration under the National Historic Preservation Act (NHPA). The BLM will analyze each proposed action by determining the likelihood of the presence of not only significant cultural properties, but also the potential for or the presence of traditional cultural proper-

ties. Potential impacts to traditional cultural properties subject to the NHPA and determined eligible for the National Register of Historic Places will be avoided or, if possible, mitigated.

Fish and Wildlife

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

The Proclamation discusses the importance of the Monument's wildlife and wildlife habitat. Many of the biological objects described in the Lewis and Clark Journals continue to make the Monument their home. The Proclamation states, "The monument boasts the most viable elk herd in Montana and one of the premier big horn sheep herds in the continental United States. It contains essential winter range for sage-grouse as well as habitat for prairie dogs. ... The cliff faces in the monument provide perching and nesting habitat for many raptors, including the sparrow hawk, ferruginous hawk, peregrine falcon, prairie falcon, and golden eagle. Several pairs of bald eagles nest along the river in the monument and many others visit during the late fall and early winter. Shoreline areas provide habitat for great blue heron, pelican, and a wide variety of waterfowl. The river and its tributaries in the monument host forty-eight fish species, including goldeye, drum, sauger, walleye, northern pike, channel catfish, and small mouth buffalo. The monument has one of the six remaining paddlefish populations in the United States. The river also supports the blue sucker, shovel nose sturgeon, sicklefin, sturgeon chub, and the endangered pallid sturgeon."

The BLM will maintain and enhance habitat for wildlife. The emphasis for habitat maintenance and development will be placed on present and potential habitat for sensitive, threatened and/or endangered species, nesting waterfowl, game birds, fisheries and crucial big game winter ranges. The Montana Fish, Wildlife & Parks (MFWP) is responsible for fish and wildlife population management.

The BLM will coordinate with other agencies consistent with the National Invasive Species Management Plan (NISC 2001) to control non-native species that cause or may cause significant negative impacts and do not provide an equivalent benefit to society.

Implementation

Specific management and mitigation measures for some wildlife species are addressed under the Health of the Land and Fire section of the alternative descriptions later in this chapter.

Big Game

A variety of big game species including mule deer, white-tailed deer, elk, bighorn sheep, pronghorn antelope and mountain lion are found in the Monument.

Expansion of big game populations into existing, but previously unoccupied habitat may occur. The BLM will work with MFWP, landowners and grazing permittees to determine the most appropriate management practices if monitoring indicates a deterioration of rangeland health in herd expansion areas. These practices may involve adjusting livestock grazing (seasons of use, use levels) on a temporary or permanent basis, reducing wildlife populations or other management options.

The BLM will use grazing methods to enhance bighorn sheep habitat and allow their expansion in the Missouri Breaks. Domestic sheep and goats will not be allowed on BLM land within 15 miles of areas occupied by bighorn sheep. In other areas, domestic sheep and goats may be allowed on a case-by-case basis to control noxious weeds.

The BLM will improve the quality and quantity of wildlife forage by using different grazing systems, changes in seasons of use, movement of livestock, and reductions in livestock numbers where needed to meet Standards for Rangeland Health. This will include improving the production and availability of palatable forbs for deer and antelope; maintaining and/or improving deer and antelope winter range (especially woody species) and fawning cover; and maintaining existing sagebrush stands at a canopy cover of 15-50% with an effective height over 12 inches, or at the highest potential for existing ecological site present, as determined by Natural Resources Conservation Service (NRCS) soil survey.

Waterfowl

Habitat enhancements (islands, nesting platforms) may be constructed on new or existing reservoirs, ponds, potholes or river systems where feasible. Pits and reservoirs will not be constructed within natural wetlands or riparian areas which provide habitat for waterfowl and amphibians. Rights-of-way on or across BLM land for the development of private water sources will carry stipulations to enhance waterfowl habitat.

The BLM may fence specific existing and new waterfowl and fishing reservoirs to establish or protect shoreline vegetation for a minimum perimeter of 1,000 feet around the high water line. Periodic, short-term grazing of fenced enclosures may be allowed, if necessary, to maintain or improve wetland habitat.

Upland Game

The BLM will improve the quality and quantity of nesting, brood rearing and winter habitat for upland game birds. The BLM will provide residual grass and forb cover for upland bird and waterfowl nesting. Objectives for residual cover will be developed in watershed plans and measured in terms of percent of residual (utilization levels) or visual observation rating. The BLM will manage for a healthy diverse vegetative community with a variety of forbs, and maintain big sagebrush and silver sage on sage-grouse wintering and nesting areas with a canopy cover of 15-50% and an effective height of 12 inches. The BLM will improve or maintain woody vegetation for sharp-tailed grouse.

Construction of new water developments within 1/2 mile of a sharp-tailed grouse lek will only be allowed after careful consideration of potential impacts on woody vegetation due to possible increased livestock grazing. Land treatments will be designed to maintain sagebrush levels with the desired canopy cover range (15-50%) and to increase the amount of forbs. Controlled burning, seeding, and/or mechanical vegetation manipulation could be done on an individual basis to improve wildlife habitat.

Raptors

Raptor nest sites will be protected. No designated camping or other recreational development will occur within 1,000 feet of raptor nest sites. In order to reduce risk of raptor mortality, Avian Power Line Interaction Committee (APLIC) guidelines will be followed for all power lines and will be incorporated into all power line rights-of-way.

Great Blue Heron and Cormorant

Identified great blue heron and cormorant rookeries on BLM land will be protected from roads, campsite developments, timber cutting and other intrusions. No disturbance will be allowed within 1,000 feet of rookeries from the start of nesting through the fledging of young birds.

Paddlefish

Rights-of-way on BLM land that result in an underwater crossing of the Missouri River will be constructed between June 15 and August 15 to protect spawning paddlefish. Other mitigation to protect spawning paddlefish will be applied as necessary.

Migratory Birds

The BLM will follow the Nongame Migratory Bird Habitat Conservation Plan (BLM 1992b) for managing nongame birds that migrate to the tropics or use neotropical habitats. The overall intent is to reverse the decline in some bird populations and to implement a proactive program for other

migratory species. BLM management actions will focus on providing a variety of habitat characteristics that support successful breeding by migratory birds. This generally requires providing properly functioning habitats with the appropriate vegetation diversity, density and structure based on ecological site potential to support nesting, security and foraging. Methods used can include mechanical vegetation manipulation, prescribed fire to maintain short/mixed grass prairie, seeding or live planting to reestablish native grasslands or wetlands, and planting woody species to return sagebrush or riparian woodland species.

Threatened and Endangered Species

The BLM will work with the U.S. Fish and Wildlife Service (USFWS) to recover threatened and endangered species, including reintroduction efforts consistent with recovery plans and conservation strategies. This includes the Recovery Plan for the Pallid Sturgeon (USFWS 1993a) and the Montana Bald Eagle Management Plan (BOR 1994). In order to reduce risk of bald eagle mortality, APLIC guidelines will be followed for all power lines and will be incorporated into all power line rights-of-way. The bald eagle, black-footed ferret and pallid sturgeon are all species of special interest.

Determinations concerning endangered or threatened plants and animals will be based on one or a combination of the following factors:

- The present or threatened destruction, modification or curtailment of a species' habitat or range.
- Over-utilization of a species for commercial, sporting, scientific or educational purposes.
- Disease or predation of the species.
- The inadequacy of existing regulatory mechanisms.
- Other natural or human-caused factors affecting a species' continued existence.

No action will be initiated on BLM land that will jeopardize any federally listed threatened and endangered plant or animal. Future actions will require site-specific environmental review and, if necessary, associated biological assessments. The BLM will comply with all decisions reached during consultation with the USFWS. Prior to the initiation of any action on BLM land, its effect on other sensitive species and state-designated species of special interest will be evaluated and applicable mitigation developed.

No black-footed ferrets have been sighted in the Monument, but the area has not been block-cleared for ferrets. The USFWS Black-footed Ferret Survey Guidelines (USFWS 1989) will be followed for all prairie dog towns, and a survey is required before any control or surface-disturbing activities can take place on towns or complexes over 80 acres. Small prairie dog towns occur throughout the Monument, but they are not suitable ferret habitat. These

towns will be managed for the other sensitive species associated with prairie dog towns.

BLM land within the area was historic habitat for grey wolf and grizzly bear. This land is not within the recovery area or important habitat for either species. There is a remote possibility, in the future, of either species relocating to habitat within the area. In the unlikely event of these species establishing within the area, management would follow the guidelines from the USFWS and MFWP. Wolves north of the Missouri River would be considered threatened and south of the river would be considered experimental. Grizzly bear occurrence would follow the guidelines in the MFWP management strategy for northwestern Montana (scheduled for the Fall of 2006).

Canada Lynx and piping plover (both threatened) have been determined to be present in other portions of the counties included in the Monument. Lynx have no suitable habitat within the Monument and are unlikely to occur in the future. Piping plover occur downstream on the Missouri River, but annual mountain runoff causes untimely flooding of sandbars on the river, making the habitat unsuitable most years. Extensive surveys have repeatedly failed to find any piping plovers or nesting sites. If active nests are identified in the future, USFWS guidelines would be followed to protect these sites.

Fishes

Consistent with a cooperative plan between the BLM and MFWP, the MFWP will be requested to stock the Butch, Sundance and Gazob reservoirs with fish. In the future, other reservoirs may be identified for fisheries management. Priority consideration will be given to reservoirs near communities with public access. Fisheries potential will be considered during the location and design phases of new reservoirs. New reservoir proposals should include surveys for breeding amphibians at the appropriate time of the year as well as an analysis of the effects of predators on upland birds.

Reservoirs will not be constructed in natural wetlands or riparian areas, which provide habitat for waterfowl and amphibians. New fisheries reservoirs will normally be fenced and a livestock watering tank provided below the reservoir. Existing fisheries reservoirs will be fenced to exclude livestock, if necessary, to improve emergent vegetation, shade and/or improve the recreational experience.

Animal Damage Control

Animal damage control will be conducted only with the Monument manager's approval when the animal control measure targets the specific offending animal(s) and health and safety factors are not issues. Animal damage control activities will also adhere to off-road vehicle restrictions in

that all vehicle travel is limited to designated roads, including roads available for administrative use. The Monument manager will approve other site-specific restrictions as needed.

Geology

The BLM's goal is to protect the surface features in the landscape that are identified in the Proclamation.

The Proclamation discusses the importance of the geology in the area. The Proclamation states, "The monument is covered with sedimentary rocks deposited in shallow seas that covered central and eastern Montana during the Cretaceous period. Glaciers, volcanic activity, and erosion have since folded, faulted, uplifted, and sculpted the landscape to the majestic form it takes today."

The Proclamation reserved and appropriated all federal lands and interests in lands within the Monument and withdrew them from all forms of entry, location, selection, sale, leasing, or other disposition under the public land laws, including the mineral leasing and mining laws. No new mining claims can be located, and no new prospecting or exploration activities can be undertaken to identify locatable minerals or to establish the discovery of valuable mineral deposits. Plans of Operations for mining will not be approved unless the Department of the Interior has determined that the mining claims covered by the Plan of Operations are valid under the Surface Management Regulations at 43 CFR 3809.100.

The interpretation of geologic sites is addressed under the Visitor Use, Services and Infrastructure section of the alternative descriptions later in this chapter.

Implementation

There are no active mines in the Monument for saleable (sand and gravel) or locatable minerals (precious metals or gems). The area is closed to disposal of mineral materials by regulation (43 CFR 3601.12(a)). Currently, 63 mining claims for precious gems are located in the Monument. A Plan of Operations would have to be filed with the Lewistown Field Office before any surface disturbance exceeding casual use could be conducted on these claims (43 CFR 3809.11(7)). The first step in the process of responding to the Plan of Operations is a validity determination on the mining claim(s) involved. Each claim must have a discovery of a valuable mineral prior to the date of the withdrawal to be considered a valid existing right. In the event that the claims were determined to be valid, the Plan of Operations would be processed under the Surface Mining Regulations at 43 CFR 3809 or 3802 (for wilderness study areas). The Proclamation does not direct the BLM to initiate validity

determinations on the claims. Under existing policy for withdrawn lands, the claimant can continue to hold the claim by payment of annual fees in lieu of assessment or relinquish the claims. Unless the claimant initiates the process by either filing a Plan of Operations or an application for patent, no action will be taken by the BLM on the claims unless it is in the public interest to do so (BLM Manual 3060.12A).

Soils

The BLM's goal is to maintain or improve soil health and productivity to provide an ecosystem supporting plant and animal species.

The BLM will comply with Standard for Rangeland Health #1 which requires that the uplands are in proper functioning condition and Standard #2 which requires that riparian and wetland areas are in proper functioning condition, to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion.

Implementation

Prior to authorizing any surface-disturbing activity (including, but not limited to range improvements, natural gas development or right-of-way location) the BLM will evaluate the activity and, if necessary, apply mitigating measures, deny the authorization or relocate the activity to a more suitable soil type. Surface-disturbing activities may be prohibited during muddy and/or wet soil periods. Site-specific measures will be developed for soils with high erosion susceptibility, steep slopes, sparse vegetation and shallow soil depth. Activity plans will include mitigation to protect ground cover and streambank stability and to reduce sediment yields from surface-disturbing activities. All surface-disturbing activities are subject to an on-site evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. These mitigation measures or BMPs (Appendix G) will also prescribe revegetation programs.

Vegetation – Native Plants

The BLM's goal is to manage for healthy vegetation communities that provide for a wide variety of long-term benefits such as aesthetics, wildlife, recreation, livestock grazing, etc.

Vegetation allocation to enhance plant health, protect watersheds, wildlife habitat, and wildlife forage and livestock forage was established according to policies, regulations and land use plan objectives (BLM 1979 and 1982). In general, about 60% of the annual vegetation production is allocated to watershed protection, plant health and/or wildlife forage and cover, and about 40% is allocated to live-

stock. However, as specific management goals are refined and changes in resource conditions become apparent through monitoring, the actual percentage of vegetation allocated may change. For example, if the area grazed is very steep and far from water the actual allocation to livestock could be substantially less than 40%. The Livestock Grazing section in Chapter 3 provides more information about forage allocation.

The Standards for Rangeland Health for northcentral Montana were developed in cooperation with the Central Montana Resource Advisory Council (BLM 1997). Standards are physical or biological conditions or functions required for healthy, sustainable rangelands. All of these standards depend on healthy native vegetation. The purpose of standards is to establish minimum required conditions for BLM lands within broad geographic areas. They address watershed function; nutrient cycling and energy flow; water quality; air quality; habitat for threatened, endangered, proposed or special status species; and habitat quality for native plant and animal populations and communities.

The following five standards were established for northcentral Montana:

- Standard #1 Uplands are in proper functioning condition;
- Standard #2 Riparian and wetland areas are in proper functioning condition;
- Standard #3 Water quality meets Montana state standards;
- Standard #4 Air quality meets Montana state standards; and
- Standard #5 Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

For a complete description of the Standards for Rangeland Health, see Appendix H. Each of these standards has a set of indicators that provides clues to the health of the ecosystem. These indicators are compared with a set of criteria that have been recognized for a healthy and functional system. When measures of these indicators fall outside of the desired range, it may indicate that Standards for Rangeland Health are not being met.

The Monument will be managed to achieve a natural range of native plant associations, including measures to promote conservation of sensitive plant species. Management activities will not be allowed to substantially shift the makeup of native plant communities and associations or disrupt normal succession. However, there will be some circumstances where vegetation communities and associations will be shifted to meet specific management goals or

objectives. These could include prescribed burns to reduce hazardous fuel circumstances, restoration of some habitat components in the interest of wildlife, treatments to control invasive species, etc.

Implementation

Standards determinations were made on an allotment basis. Once the determinations were documented, implementation was carried out in groups of allotments through watershed plans. This included changes to grazing management and construction of range improvements when necessary. Table 2.2 lists the watershed and landscape plans.

Table 2.2 Watershed and Landscape Plans Completed	
<i>Name</i>	<i>Year Completed</i>
Woodhawk Watershed Plan	1998
Two Calf Watershed Plan	1998
Armells Watershed Plan	2000
Beauchamp Watershed Plan	2001
Upper Missouri Watershed Plan	2002
Loma/Vimy Ridge Watershed Plan	2002
Arrow Creek/Upper River/Whiskey Ridge Landscape Plan	2004
Bears Paw to Breaks Implementation Plan	2005

When a grazing allotment is not meeting standards, the BLM is obligated to take action to correct the situation. Specifically, where grazing is responsible for not meeting standards, action is required in accordance with 43 CFR 4180.2(c).

Vegetation – Riparian

The BLM’s goal is to achieve, or make significant progress toward, proper functioning condition in riparian areas.

The BLM will maintain and/or improve the riparian-wetland areas based on proper functioning condition (PFC) and the desired plant community (Appendix H).

Implementation

The BLM will initially accomplish riparian-wetland objectives through livestock grazing methods at current stocking levels. If grazing methods are not successful in meeting management objectives, the BLM will take the necessary

actions to achieve those objectives. To accomplish the riparian-wetland objectives, the BLM will consider the importance of the intermingled private lands, including valuable riparian-wetland areas, which could be adversely impacted as a result of management changes on BLM land.

The eight watershed or landscape plans (Table 2.2) address implementation of Standards for Rangeland Health and Guidelines for Livestock Grazing Management. With the completion of these plans, the Monument is included in several plans with stated riparian-wetland objectives and methods for achieving those objectives.

Riparian-wetland objectives will continue to be developed and implemented through the watershed planning process. Exclosures, change in season of use, refined grazing prescriptions, riparian pastures, etc. could be used to achieve PFC. The BLM will maintain current grazing systems for those riparian areas in PFC.

When hydrologic conditions allow, the BLM will coordinate with the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and county/city/private organizations to secure the release of water from dams upstream from the Monument. These high water events would establish deciduous forest and woody riparian seedlings, create water flows favoring wildlife habitat and native fishes and promote endangered species recovery.

Vegetation – Noxious and Invasive Plants

The BLM's goal is to control, contain and if possible, eradicate invasive plants.

The management of noxious and invasive plants will continue as prescribed in the Upper Missouri River Breaks National Monument: Guidelines for Integrated Weed Management (BLM 2001b). This weed management plan provides guidelines for the prevention, containment and eradication of invasive and noxious plants, and for the coordination of BLM, state and private weed management efforts.

The BLM will coordinate with other agencies consistent with the National Invasive Species Management Plan (NISC 2001) to control non-native species that cause or may cause significant negative impacts and do not provide an equivalent benefit to society.

Implementation

The BLM will designate the Monument a weed management area to facilitate cooperation among landowners and various federal and state agencies, and to secure funding to implement integrated weed management control measures.

The BLM will identify weed prevention areas and emphasize prevention activities to keep weed seed and regenerative plant parts from being introduced into weed free areas. Implementation of an early detection and rapid response program would ensure new infestations are identified early and aggressively managed to protect and maintain uninfested areas.

The BLM will increase public awareness of invasive plant and weed species and develop treatment strategies to control noxious weeds in and around developed and primitive recreation use areas.

The BLM will develop treatment strategies to contain and/or eradicate weed infestations throughout the Monument using integrated weed management methods.

Visual Resources

The BLM's goal is to protect the cultural landscape (viewshed) and the visual features in the landscape that are identified in the Proclamation.

The visual resource management (VRM) classes are based on a process that considers scenic quality, sensitivity to changes in the landscape and distance zone. The four VRM classes are numbered I to IV; the lower the number, the more sensitive and scenic the area. Each class has a management objective which prescribes the level of acceptable change in the landscape.

The VRM class objectives are defined as follows:

Class I – The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II – The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

Class III – The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat

the basic elements found in the predominant natural features of the characteristic landscape.

Class IV – The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements.

Surface-disturbing activities and/or developments will be designed or mitigated to compliment and harmonize with the natural features and the VRM class objectives. Any projects must have a visual contrast rating worksheet completed as a part of the environmental analysis.

Specific management for visual resources is addressed under the Health of the Land and Fire section of the alternative descriptions later in this chapter.

Implementation

The visual resource contrast rating system will be used during project level planning to determine whether or not proposed activities will meet VRM objectives. Mitigation measures would then be identified to reduce visual contrasts, including the use of BMPs (Appendix G).

Water Quality

The BLM's goal is to maintain and/or improve the existing hydrologic systems in the Monument.

Surface and ground water quality will be maintained to meet or exceed federal and state water quality standards, including Standard for Rangeland Health #3 which requires that water quality meets Montana state standards. The BLM will continue obtaining water rights for all projects on BLM land and will comply with Montana water laws.

The BLM will improve or maintain vegetative cover on uplands and riparian-wetland areas to reduce runoff and sedimentation.

Implementation

The Environmental Protection Agency, in administering the Clean Water Act, requires all states to identify rivers, streams, lakes, and wetlands where beneficial uses are impaired or threatened by human activity, and to schedule those waters for development of water quality restoration plans. This process is known as the Total Maximum Daily

Load (TMDL) process. The BLM will continue to comply with the TMDL process by addressing listed streams in the watershed planning process.

All surface-disturbing activities are subject to an on-site evaluation to mitigate impacts to water quality and quantity. No activities should alter stream courses. BMPs will be implemented to protect watershed values and maintain or improve water quality (Appendix G). Other measures to protect stream courses will be evaluated prior to project approval.

Water Developments and Water Rights

Approximately 95 reservoirs, 4 springs, 14 water savers, 7 wells, 35 miles of pipeline, and 32 stock tanks exist in the Monument area for use by livestock and wildlife.

Several shortfalls exist in the physical demand for surface water in the Monument. Suitable reservoir sites are scarce due to high siltation rates, erodibility of fill material, potential for saline seeps and lack of access for heavy equipment. Water savers are an alternative for reservoirs.

Ground water in much of the area is too deep to be cost effective, although wells with pipelines supplying many tanks may solve localized water shortages. Where ground water is available, lack of power precludes many well sites from being developed. Solar or gas-powered pumps may provide stock water in some locations.

Implementation

The BLM must consider downstream senior water rights claims before developing surface water sources. Specific management for water developments is addressed under the Health of the Land and Fire section of the alternative descriptions later in this chapter.

Reserved Water Rights

The BLM's goal is to maintain and/or improve the existing hydrologic systems in the Monument.

The Proclamation reserves "subject to valid existing rights, a quantity of water in the Judith River and Arrow Creek sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation."

The BLM land needs to be managed in a manner that preserves and protects the integrity of these watershed

systems. These protections must provide the opportunity for a flow regime that supports the health and regeneration of cottonwood galleries, which provide a seed source for the downstream cottonwood galleries. These galleries also contribute to the dilution of sediment, arsenic, and nutrient loading in the Missouri River.

The BLM is currently collecting hydrologic data from both the Judith River and Arrow Creek. Once this data collection is complete, the BLM will begin negotiations with the Reserved Water Right Compact Commission to quantify its claimed reserved right. After June 30, 2009, the Reserved Water Right Compact Commission no longer has authority to negotiate reserved water rights. The process of quantifying this reserved right then must be adjudicated through the state court system.

Implementation

To maintain and/or improve the hydrologic conditions and restore instream flows, the BLM will pursue the purchase of water rights, from willing sellers only, on tributaries to Arrow Creek and the Judith River.

The BLM will continue its efforts to determine the extent and importance of the water rights reserved by the Proclamation. This will include a study to quantify the base flow and flood flows for the Judith River and the flood flows for Arrow Creek.

These water rights, if asserted, would carry a priority date of January 17, 2001 and would be junior to all water rights that existed at that time. Because these water rights are very junior in this area (the majority of water rights in these basins stem from the 1880s through the mid-1900s), they may have a very limited ability to affect or protect the streamflows in the Judith River and Arrow Creek.

Montana law provides for the Montana Reserved Water Rights Compact Commission, a state-appointed body, to negotiate with the various federal agencies and tribal governments who claim reserved water rights. This process provides for public input throughout the negotiation process and requires that the Montana legislature, Governor of Montana and Secretary of the Interior approve any settlement proposal. The BLM has not requested a negotiation at this time and cannot reach a decision on the assertion of the federal reserved right without further information on base and flood flows along with public input.

Lands and Realty

The BLM's goal is to provide reasonable access for the public, private landowners, as well as for the administrative needs and authorized uses of industry and government agencies.

Under the Proclamation, all federal lands and interests in lands are “hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, ... and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. The establishment of this monument is subject to valid existing rights.... Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.”

Implementation

Rights-of-Way

Applications for rights-of-way will be considered pursuant to existing policies and practices, identified transportation and utility corridors, identified avoidance and exclusion areas, valid existing rights, and as necessary for adequate access to state or private land (e.g., access to explore, develop and produce state or private minerals) as well as access for utility or transportation services. Such applications must be in conformance with the Wild and Scenic Rivers Act and provide for mitigation necessary to protect Monument resources. The BLM has discretion to evaluate such things as construction methods, alternate routes or type of access (including only aerial access) and to establish reasonable terms and conditions necessary to protect the public interest. All power line rights-of-way must comply with APLIC guidelines to protect, or reduce impacts to raptors and bald eagles.

Applications for commercial wind energy systems, solar energy systems and communication sites will not be considered.

Leases and Permits

New land use authorizations (e.g., farming lease) issued under 43 CFR 2920, with the exception of film permits, will not be authorized. Applications for film permits using the uplands and which may cause impacts that require mitigation will require a Notice of Realty Action in the Federal Register, a 30-day public comment period, environmental analysis, and may require bonding and liability insurance. Film permits confined to the Missouri River and/or access roads in the Monument will be treated as minimum impact permits as defined at 43 CFR 2920.2-2. Permits are not required for casual use filming activities which normally involve non-commercial still photography or recreational videotaping.

Land Ownership Adjustment

BLM land will not be disposed of other than by exchange, and only when necessary to further the protective purposes of the Monument, block up BLM land within the Monument and enhance the values for which the Monument was designated.

Disposal of BLM land would be limited to parcels meeting this criteria:

- The parcel is located at the edge of the Monument and disposal would not create an inholding;
- The parcel contains minimal Breaks topography;
- The parcel contains minimal objects for which the Monument was designated; and
- The parcel presents resource conflicts.

Private land or easement acquisitions that enhance the values of the Monument will be considered only with willing sellers. The BLM will explore the feasibility of a land exchange program with the Department of Natural Resources and Conservation. Such exchanges would focus on state lands that would contribute to the objects for which the Monument was designated. The above criteria do not apply to BLM lands outside the Monument, which are available for exchange under criteria contained in the Judith-Valley-Phillips and West HiLine RMPs.

The BLM will consider the acquisition of private land (either fee or conservation easement) through the Land and Water Conservation Fund. These acquisitions are pursued only on a willing-seller basis.

Lands acquired by the BLM will be managed consistent with adjacent BLM land. Upon acquisition of title, acquired lands will become part of the Monument and are withdrawn accordingly.

Revised Statute 2477

Revised Statute 2477, which provided that “[t]he right of way for the construction of highways over public lands, not reserved for public uses, is hereby granted,” was repealed on October 21, 1976, by the Federal Land Policy and Management Act (FLPMA). The FLPMA did not terminate valid rights-of-way established under Revised Statute 2477 prior to its repeal. Since 1993, the BLM has deferred any processing of Revised Statute 2477 assertions except in cases where there is a demonstrated, compelling, and immediate need to make such determinations. Any assertions will be processed consistent with the “Interim Departmental Policy on Revised Statute 2477 Grant of Right-of-Way for Public Highways; Revocation of December 7, 1988 Policy,” dated January 22, 1997.

Livestock Grazing

The BLM’s goal is to permit livestock grazing consistent with maintaining healthy vegetation communities.

Under the Proclamation, the “[l]aws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.”

The allocation of forage for livestock grazing was established following the Taylor Grazing Act of 1934. Since that time, several laws, regulations and changes have revised livestock grazing on BLM land. The most recent change concerning livestock grazing was the establishment of Standards for Rangeland Health in 1997. Continued livestock grazing is permitted pursuant to the terms and conditions of permits and leases. Livestock grazing will be managed through implementation of Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Appendix H). Grazing guidelines were established in 43 CFR 4180(f)(2), and regionally refined guidelines were established in the Montana/Dakotas Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997). Through the watershed and/or activity plan process, assessments of standards were prepared. If existing grazing management was responsible for not meeting standards, modifications to the grazing authorization are implemented to ensure standards will be met. These can include changes to allocated use, seasons of use, grazing rotations or other grazing management practices. The Monument designation in itself does not mandate a need for an adjustment of forage allocated to livestock. Continued monitoring as it relates to Standards for Rangeland Health will be the basis of making adjustments to livestock grazing.

Terms and conditions, beyond basic guidelines for livestock grazing, may be developed in the watershed planning process or as monitoring indicates a need for change to meet specific goals and objectives in the watershed or allotment.

Guidelines for Livestock Grazing Management practices will be followed to protect rangeland resources and, where necessary, to mitigate conflicts with other Monument uses and values. Administrative actions will be implemented under existing regulations to ensure compliance with existing permit/lease requirements. These actions include monitoring and supervision of grazing use and enforcement in response to unauthorized use. Completed watershed plans will be implemented, including the associated range improvement projects, as part of this guidance to meet Standards for Rangeland Health (Appendix H). NEPA documentation will be prepared before renewal of grazing

permits. This documentation will include a review of new monitoring and resource data and may include a reassessment or evaluation. The normal term of a grazing permit is 10 years, but they may be issued for a shorter period if resource concerns or administrative reasons merit.

Grazing management facilities included in completed watershed plans and analyzed through the National Environmental Policy Act (NEPA) process will be implemented as part of this guidance to meet Standards for Rangeland Health. Maintenance of existing projects will occur in the same general manner and degree as in the past. Other projects will be constructed only where an environmental review demonstrates they would enhance Monument resources and meet overall management goals.

Implementation

Livestock grazing will continue to be managed through development and monitoring of grazing activity plans and supervision of grazing use. Plans and grazing prescriptions will be developed with multiple use objectives to enhance vegetation production and diversity; maintain and enhance wildlife habitat; protect watersheds; reduce bare ground; and minimize livestock/recreation conflicts. If improved grazing management alone does not meet management objectives, vegetation treatments will be considered.

All allotments have been assigned to a management category depending on the resources and problems contained in the allotment. The three categories of Improve (I), Maintain (M) and Custodial (C) reflect resource conditions, resource potential and economic considerations for each allotment. The terms improve, maintain and custodial relate to resource objectives for the allotment, i.e. whether conditions need to be improved or maintained, or if custodial management is appropriate because of relatively limited resources and resource problems. The BLM's allotment categorization system will continue to determine priorities for implementing grazing activity plans, spending range improvement funds and monitoring. Allotments will be subject to recategorization based on changes in resource conditions as determined through monitoring.

Range improvements (primarily reservoirs, other water facilities, fences and land treatments) will be built to support activity plans. Fences will be designed to allow easy passage of wildlife. Vegetative manipulations will be planned, developed and implemented to ensure that negative impacts to resources (primarily wildlife, soils, range, and watersheds) are identified and mitigated. Treatments will be applied if maintenance or improvement cannot be achieved with grazing management practices. Watershed parameters, topography, soil type, infiltration and soil loss potential will also be considered and mitigated, as necessary, in vegetation manipulation projects.

All vegetation increases will be allocated to watershed until soils and vegetation are stabilized to a satisfactory condition as determined by an interdisciplinary team prior to increasing livestock or wildlife allocations.

Some unallocated parcels will remain available for livestock grazing. These are generally isolated small tracts. An environmental assessment will be prepared for areas not previously grazed by livestock. When the opportunity becomes available to create resource reserve allotments, these allotments would technically not be allocated in the sense of adjudication of grazing preference attached to base property; however, they would be available for grazing under guidelines established for use of the resource reserve allotment.

Livestock forage allocations on newly acquired land will be based on management needs and objectives of the acquisition. The allocation may range from zero to full capacity and could be adjusted if monitoring indicates a need to make changes to meet management objectives.

Temporary decreases in livestock forage allocations will be implemented in the event of a temporary loss of forage such as in severe drought, fire, or insect or weed infestations. Temporary increases in livestock forage allocations will be made on a temporary nonrenewable basis, where such increases are within the available carrying capacity and are consistent with multiple use objectives as determined by an interdisciplinary review.

Grazing permittees (permit/lease) have an opportunity to apply each year for changes in grazing use within their permitted use level. These changes may include adjustments in season of use, livestock numbers or class of livestock. Applications for major changes in livestock use will be considered through environmental analyses.

Livestock forage allocation and rangeland health will be monitored on a continuing basis for actual use, utilization and trends, and to ensure compliance with the terms and conditions of grazing permits and leases. The monitoring data will be analyzed to determine if grazing management is achieving land use or activity plan objectives; to allow temporary increases or decreases in AUMs; and to revise grazing activity plans. Monitoring intensity will be based on meeting Standards for Rangeland Health. Violations of permits will be pursued in accordance with the grazing regulations.

Developed recreation sites will be excluded from livestock grazing, except where grazing is needed to maintain the desired plant community. Goats and/or sheep could be used under strict prescriptions to control weeds in special circumstances. Grazing by horses and other livestock used by

recreationists in developed recreation sites will be managed through specific activity plans.

The BLM will maintain or enhance bighorn sheep habitat. A change in class of livestock from cows to domestic sheep will not be allowed within 15 miles of areas occupied by bighorn sheep. In other areas, domestic sheep may be allowed on a case-by-case basis to control noxious weeds.

The BLM will manage the Cow Creek Area of Critical Environmental Concern (ACEC) with a strong emphasis on riparian management. Existing grazing activity plans will be revised to incorporate grazing management practices to improve riparian community conditions. The management emphasis will discourage or prevent livestock congregation along the bottoms to maintain or enhance riparian vegetation.

The Ervin Ridge Wild Horse Herd Area, identified under the Wild Horse and Burro Act, will remain free of wild horses (BLM 1985).

Minerals – Oil and Gas

The BLM's goal is to provide reasonable oil and gas exploration and development on existing leased land without diminishing the objects of the Monument.

The Proclamation does not allow new oil and gas leases in the Monument. The 43 federal oil and gas leases in the Monument are considered to have valid existing rights based upon the Proclamation, wherein it states, "The establishment of this monument is subject to valid existing rights. The Secretary of Interior shall manage development on existing oil and gas leases within the monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation." The existing leases are also in compliance with their lease terms and conditions. (See Chapter 3 Minerals – Oil and Gas, Appendix K and the Glossary for more information regarding the leases.)

Specific management for oil and gas is addressed under the Natural Gas Exploration and Development section of the alternative descriptions later in this chapter.

Implementation

Notices of Intent and/or Sundry Notices will be required for all seismic operations. Any approvals by the BLM will include inventories and mitigation measures to avoid new impacts that interfere with the proper care and management of the objects protected by the Proclamation. Off-lease seismic operations or seismic operations on BLM land with

unleased federal minerals may be permitted for the purpose of defining the limits of the federal lessee's interests or for the purpose of exploring state and fee oil and gas minerals. Seismic operations planned off of existing roads must demonstrate that proposed transportation and exploration methods will minimize the potential for creating new roads or trails.

Existing well operations and maintenance will continue and could involve activities that do not require approval under existing oil and gas regulations. These activities could include routine well operations, well stimulation operations, down-hole well maintenance or tests for production capability.

The BLM will determine the potential impacts of oil and gas operations and mitigation measures to avoid interference with the proper care and management of the objects protected by the Monument. If the analysis and documentation indicate that a proposal may have impacts that are not in conformance with the Proclamation, regulation, BMPs or existing resource management plans, the BLM will work with the applicant to find alternatives or modifications to the proposal that will minimize such impacts through special permit conditions, consistent with the applicant's rights under applicable laws, regulations and stipulations.

The current application for permit to drill (APD) review process will be utilized, which includes a 30-day posting period for public review of the proposal. Following the 30-day posting period, the application can be approved in accordance with lease conditions of approval; Onshore Oil and Gas Orders; and Onshore Oil and Gas regulation (43 CFR 3160) if the application is administratively and technically complete. (See Appendix K – Reasonably Foreseeable Development scenario regarding discussion under the section Possible Oil and Gas Operations to Occur in the Monument.) The BLM will determine if public review periods are necessary for additional well operations (e.g., pipelines, production pits, compressors) that require BLM approval.

Surface construction for new well pads, roads, pipelines and associated facilities will involve the minimum acreage necessary for safe operation in order to mitigate impacts to Monument objects. Existing rights-of-way and roads will be used for new operations as much as possible to avoid impacts that interfere with proper care of Monument resources. Using existing disturbed areas for well locations will be emphasized. Production facilities will be located at individual well sites or co-located if grouping of production facilities would minimize visual contrasts with Monument objects. Gas pipelines will follow existing road corridors if available. All oil and gas operations within the Monument, including reclamation activities, will be made a high priority for surface inspections.

Recreation

The BLM's goal is to manage for a variety of sustainable visitor opportunities in mostly primitive and natural landscapes.

The BLM will maintain and/or enhance the recreational quality of BLM land and resources to ensure enjoyable recreational experiences. Specific management for recreation is addressed under the Visitor Use, Services, and Infrastructure section of the alternative descriptions later in this chapter.

The BLM's Recreation 2000 guidance and the Tri-State Recreation Plan incorporate the following provisions:

- Managing visitor services including a permit system, interpretive programs, visitor contact and efforts to improve the BLM's image with public land users;
- Maintaining all facilities where the public comes in contact with BLM roads, trails, signs, recreation sites and buildings;
- Developing partnerships among other agencies, organizations and private citizens; and
- Enhancing budget/marketing techniques that showcase the BLM's land management.

The recreation emphasis will be to develop and maintain opportunities for dispersed recreational activities such as hunting, scenic and wildlife viewing and driving for pleasure, consistent with current policies and practices and the Proclamation. Methods to achieve these opportunities include emphasizing public access and the Watchable Wildlife and Back Country Byways programs. The BLM will provide dispersed recreation opportunities to support local, regional and national needs.

The BLM will increase coordination with the Montana tourism industry to market BLM recreational opportunities, particularly with the Charlie Russell and Missouri River Tourism Regions for the State of Montana.

The BLM will emphasize a pack in/pack out garbage policy.

The BLM will provide uniformed law enforcement patrols of the Monument. The law enforcement program will stress public compliance through education and outreach to develop a sense of public ownership of the Monument. The BLM will respond to resource violations consistent with current law enforcement responsibilities within the Lewistown Field Office. The Blaine, Chouteau, Fergus and Phillips County Sheriffs' Departments conduct emergency services in the Monument. The BLM assists as requested with available resources. Emergency services are guided by BLM policy and administrative action.

Geocaching is an appropriate, casual use of BLM land, and a Special Recreation Permit (SRP) is not required if the activity is casual use and inflicts no damage on the resources (no surface disturbance). However, if the activity becomes too large and begins to conflict with other authorized uses or affects the resources of the Monument, appropriate steps will be taken to manage the activity. This would include preparation of an environmental assessment or other appropriate NEPA document; issuance of letters of agreement or SRPs with special stipulations to mitigate concerns; and requirements for the registration of geocaching sites and removal of those geocaches if authorization is not given.

Four Undaunted Stewardship interpretive projects are located on private property intermingled with the Monument along the UMNWSR. This is a collaborative partnership program that involves private landowners (ranchers), Montana Stockgrowers Association, Montana State University and the BLM. The objective is to preserve both Lewis and Clark and Montana frontier history. The four sites include the ABN Ranch east of Virgelle, the Lanning/Terry Ranch south of Big Sandy, the Crawford Farm & Ranch north of Geraldine, and the Wortman Ranch near the PN Bridge (Judith Landing) north of Winifred.

Implementation

Upper Missouri National Wild and Scenic River

Management of the UMNWSR is guided by the 1993 River Plan Update (BLM 1993). The River Plan Update identified the specific actions necessary to implement guidance provided by the West HiLine RMP (BLM 1992a) and to revise some outdated management actions. In the future, the river plan will be updated based on the guidance from the Monument RMP, specifically the Visitor Use, Services and Infrastructure section of the alternative descriptions later in this chapter.

The UMNWSR will be managed to protect and preserve the remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, and other values as directed by Congress in the Wild and Scenic Rivers Act (PL 90-542, 1968) and the amendment for the Upper Missouri (PL 94-486, 1976). The BLM will manage the segment of the Lewis and Clark National Historic Trail within the planning area, in a manner that is consistent with the purposes and provisions of the National Trails System Act (PL 90-543, 1968) as amended by PL 95-625 (1978).

The BLM will provide recreational opportunities and visitor services consistent with the Wild and Scenic Rivers Act, as amended. Future developments will mitigate impacts to natural and cultural resources. Mitigation measures will be determined after site-specific evaluations.

The Fort Benton River Management Station will be maintained and operated as an administrative site, supporting visitor services for the UMNWSR until the Upper Missouri River Breaks National Monument Interpretive Center is built in Fort Benton. Construction is scheduled for completion in 2006. The new center will continue to support visitor services for the UMNWSR and provide interpretive information on the cultural and natural history of the Monument. Access points at the Chouteau County Fairgrounds Campground and Canoe Launch, Fort Benton Power Boat Ramp, Wood Bottom, Coal Banks Landing, Judith Landing and James Kipp Recreation Area will serve as points of contact to provide health and safety information, register boaters, and collect visitor use information.

The BLM will continue, and may expand, visitor services operations to provide for public health, safety and law enforcement. Search and rescue operations and law enforcement will continue as a cooperative effort between the BLM and state and local agencies.

The BLM will coordinate with the USFWS on bankside recreation use and management within the Charles M. Russell (CMR) National Wildlife Refuge boundaries, between river miles 139-149.

Nez Perce National Historic Trail

The Nez Perce National Historic Trail passes through the Monument and the BLM will manage the recreation activities and opportunities associated with this portion of the trail in a manner consistent with the purposes and the provisions of Public Law 90-543, as amended by Public Law 99-445, and the comprehensive plan prepared by the U.S. Forest Service (USFS, 1990). This National Historic Trail System provides several opportunities for interpretation. This key segment begins near Winifred and enters the UMNWSR near Cow Island. It also parallels portions of the Missouri River Breaks Back Country Byway. Scenic and cultural values will be protected on BLM land along this historic trail.

An activity plan will be developed to detail the management activities along the trail.

Transportation

The BLM's goal is to provide access to state and federal land and reasonable access for private landowners while protecting the features of the Monument.

The BLM's goal is to manage legal and physical access to and within the Monument to provide opportunities for diverse recreation activities (motorized and non-motorized) while considering

the surrounding regional recreation opportunities in northcentral Montana.

The Proclamation states, "the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes." In addition, the Secretary "shall prepare a transportation plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects."

According to the Proclamation, these BLM lands are part of a limited area designation consistent with 43 CFR 8340. A limited area means an area restricted at certain times, in certain areas, and/or to certain vehicular use, such as no off-road travel.

Implementation

The Access and Transportation alternative discussions later in this chapter address the transportation plan for the Monument in accordance with the Proclamation and designation criteria outlined under 43 CFR 8342.1.

The BLM regulations (43 CFR 8341.2 and 8364.1) allow for area or road closures where off-road vehicles are causing or will cause considerable adverse impacts upon soil, vegetation, wildlife, wildlife habitat, cultural resources, threatened or endangered species, other authorized uses, or other resources. The authorized officer can immediately close the area or road affected until the impacts are eliminated and measures are implemented to prevent future recurrence.

Fire

The BLM's goal is to control wildland fire safely, efficiently and with minimal impact to resource values while minimizing the risk of catastrophic fire within the Monument and communities adjacent to the Monument. This includes maintaining or reestablishing the natural influence of fire on vegetation communities and associations.

Fire will be used to manage fuels and minimize the risk to those biological, geological and historical objects of interest for which the Monument was established. Fire could be a positive influence in much of this area and restoration of natural fire regimes will be encouraged where practical. However, each occurrence will require special consideration. Obvious concerns focus around structural developments, croplands, livestock and livestock forage needs, the reduction of big game thermal and hiding cover, and reduced canopy coverage in sagebrush habitats. Social and political considerations will help determine how each fire occurrence will be managed.

Appropriate management responses based on current fire danger, resource availability and predicted weather will be used to ensure safety of fire suppression personnel, reduce cost of fire suppression and to return fire to a more natural ecological role. An appropriate management response may also include limiting fires ignited by lightning to pre-planned barriers and natural fuel breaks. During each wildland fire event, a decision matrix will be developed based on fuel and weather conditions, fire danger, other fire activity and resource availability. This matrix will be used to determine the appropriate response for each fire occurrence on BLM land.

Specific management for fire is addressed under the Health of the Land and Fire section of the alternative descriptions later in this chapter.

Implementation

Wildland Fire Suppression and Rehabilitation

The BLM will suppress fires at minimum cost, based on fire fighter and public safety and the benefits and values to be protected, consistent with resource objectives. Where an identified risk to private croplands exists, all wildland fires will be suppressed during the hot or dry season. The BLM works in an interagency fashion with rural fire departments and other federal and state fire agencies. The closest available fire suppression resources respond to a fire for initial attack, irrespective of land ownership. The BLM Lewistown Fire Dispatch Center provides interagency dispatch for much of central Montana south of the Missouri River.

Appropriate management responses to wildland fire in the Monument, including wilderness study areas (WSAs), will include traditional fire line tactics, including the use of natural barriers and hand-constructed fire line. The use of earth-moving or tillage equipment is prohibited for wildland fire suppression on BLM land, unless waived by the authorized officer. Should earth-moving equipment be authorized for use in the Monument, careful consideration will be given as to how and where it is used to minimize potential impacts from erosion. Staging areas will be placed outside the Monument whenever possible. The application of fire retardant is prohibited within the White Cliffs section of the Monument, and is also prohibited within 300 feet of any perennial water body.

Rehabilitation will be based on careful consideration of resource objectives, area concerns and constraints. Certified weed-free seed and seeding with appropriate native species is required.

Prescribed Fire and other Fuels Management

Prescribed burns will be used in the Monument to protect infrastructure or wildlife habitat that would be permanently lost in the event of a catastrophic fire, to achieve desired plant communities, and to reduce hazardous fuel loads. The BLM will coordinate fuel management with private landowners, affected interests and other agencies. Land uses are to be monitored and adjusted as necessary after a fire to sustain soils and vegetation.

Wildland Fire - Wilderness Study Areas

The BLM will protect the wilderness characteristics of land within the National Wilderness Preservation System and in WSAs. Fire management-related activities should preserve the natural character of wilderness areas and avoid unnecessary impairment of a WSA's suitability for preservation as wilderness. The use of heavy equipment during wildland fire suppression and rehabilitation in WSAs should be avoided to protect wilderness characteristics. Fire camps should be located outside WSAs. Using motorized vehicles and mechanical equipment during mop-up should be minimized. A fire plan developed for any WSA should specify fire management objectives, historic fire occurrence, acceptable suppression techniques, buffer zones, smoke management concerns, and anticipated impacts on private or other agency inholdings and on adjacent landowners. Suppression methods may include use of power tools, aircraft, motorboats and motorized fire-fighting equipment while applying appropriate techniques. A wildland fire situation analysis will be completed by appropriate fire managers and resource staff for any fire that escapes initial attack or has the potential to remain in the extended attack mode for more than 48 hours.

Prescribed Fire – Wilderness Study Areas

The use of heavy equipment will be avoided to protect wilderness characteristics. Staging areas and fire camps will be located outside of WSAs, unless safety or overriding logistical concerns dictate otherwise. A prescribed burn plan will specify fire management objectives, historic fire occurrence, the natural role of fire, expected fire behavior, smoke management, and impacts on private or other agency inholdings and on adjacent landowners. The use of power tools and motorized equipment will be limited.

Wilderness Study Areas

The BLM's goal is to preserve or enhance the primitive characteristics of the wilderness study areas.

The wilderness program is in the transitional stage between wilderness study and Congressional action. Six WSAs in

Table 2.3
Montana Wilderness Recommendations
For WSAs in the Monument

<i>WSA Name</i>	<i>WSA Number</i>	<i>Acres Recommended for Wilderness</i>	<i>Acres Recommended for Non-Wilderness</i>
Antelope Creek	MT-065-266	9,600	2,750
Cow Creek	MT-066-256	21,590	12,460
Dog Creek	MT-068-244	0	5,150
SouthErvin Ridge	MT-068-253	0	10,200
Stafford	MT-066-250	0	4,800
Woodhawk	MT-068-246	0	8,100

the Monument were identified in the Montana Wilderness Inventory (BLM 1980). A final suitability study and environmental impact statement completed by the BLM (BLM 1987) recommended wilderness designation for a portion of the Antelope Creek and Cow Creek WSAs. Table 2.3 shows the recommendations for the six WSAs. All WSAs will be managed according to the Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM Manual H-8550-1) until such time as Congress acts upon the recommendations because only Congress can designate or release these lands.

Implementation

The WSAs will continue to be managed under the BLM's Interim Management Policy. The BLM will prepare a wilderness management plan for any areas designated as wilderness by Congress. The WSAs not designated as wilderness by Congress will subsequently be managed in accordance with guidance for adjacent BLM land unless otherwise specified in this RMP.

Current Management and Action Alternatives

The following sections provide a detailed description of the six alternatives for the four categories: Health of the Land and Fire; Visitor Use, Services and Infrastructure; Natural Gas Exploration and Development; and Access and Transportation.

- The Health of the Land and Fire section includes management guidance that would apply to most resources and resource uses in the Monument and includes alternatives for fish and wildlife; vegetation; range improvements; visual resources; forest products; right-of-way corridors, avoidance areas and exclusion areas; land ownership adjustment; fire; and eligible wild and scenic rivers.
- The Visitor Use, Services, and Infrastructure section includes management for recreation in the Monument. This section includes alternatives for recreation management areas; fees; gateway communities; research, collection, and special events; recreation in sensitive wildlife habitat; potential interpretive sites; special recreation use permits; opportunities for boaters; camping facilities; and motorized watercraft.
- The Natural Gas Exploration and Development section includes management guidance for the existing oil and gas leases in the Monument. This section includes alternatives for the West HiLine and non-West HiLine oil and gas leases which include timing, controlled surface use and no surface disturbance; and alternatives for seismic; drilling operations; production facilities and equipment; and reclamation.
- The Access and Transportation section includes management guidance for the transportation system in the Monument. This section includes alternatives for access; the BLM road system; and aviation.

Health of the Land and Fire

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Fish and Wildlife – Greater Sage-Grouse Habitat

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

Alternative A (Current Management)

The BLM would maintain and enhance wildlife habitat, including greater sage-grouse habitat in the Judith-Valley-Phillips planning area (BLM 1994a), through monitoring of habitat conditions and grazing use, changing the season of use, adjusting stocking rates, specifying salt and supplement locations, or terminating grazing by October 31. In the West HiLine planning area (BLM 1988, 1992a) livestock grazing methods (which may include adjusting stocking rates, specifying locations of salt and other supplements, changing the season of use or terminating grazing by October 31) would be used to maintain sagebrush stands with 15-50% canopy cover with 12" height, or at the highest potential for existing ecological site present, as determined by NRCS soil survey.

Alternatives B, C, and D

Sage-grouse management would utilize the 2005 "Management Plan and Conservation Strategies for Sage-Grouse in Montana – Final" for overall guidance and direction.

The BLM would use prescribed fire and/or mechanical treatments to reduce or increase sagebrush cover to desired levels for nesting, brood rearing, breeding habitat and winter habitat.

The BLM would identify likely nesting habitat within 2 miles of individual sage-grouse leks through field assessments. These alternatives would require leaving adequate residual herbaceous cover beneath sagebrush within nesting areas at the end of the grazing season to allow adequate cover (sagebrush canopy cover of 15-20% and a perennial herbaceous cover greater than 7") for next year's nesting.

These alternatives would prohibit supplemental feeding, mineral placement or other livestock congregating functions in identified active crucial sage-grouse habitat during sensitive seasonal times (March 1 to June 15).

These alternatives may increase sagebrush habitat and reduce crested wheatgrass in selected areas in or near nesting habitat, and reseed native sagebrush in areas that have been previously disturbed.

Concentrations of livestock near leks or crucial winter habitat can disturb or displace sage-grouse. Therefore, high livestock densities would not be allowed in identified active

nesting habitat from March 1 to June 15. Also, when conditions are required for sage-grouse security, livestock grazing would not occur in identified active crucial winter habitat (sagebrush canopy 10-30% and 10-14" height) from December 1 to March 31.

Alternative E

Sage-grouse management would utilize the 2005 "Management Plan and Conservation Strategies for Sage-Grouse in Montana – Final" for overall guidance and direction.

The BLM would use prescribed fire and/or mechanical treatments to reduce or increase sagebrush cover to desired levels for nesting, brood rearing, breeding habitat, and winter habitat.

The BLM would identify likely nesting habitat within 2 miles of individual sage-grouse leks through field assessments. This alternative would require leaving adequate residual herbaceous cover beneath sagebrush within nesting areas at the end of the grazing season to allow adequate cover (sagebrush canopy cover of 15-20% and a perennial herbaceous cover greater than 7") for next year's nesting.

This alternative would prohibit supplemental feeding, mineral placement or other livestock congregating functions in identified active crucial sage-grouse habitat during sensitive seasonal times (March 1 to June 15).

This alternative would increase sagebrush habitat through conversion of crested wheatgrass in selected areas in or near nesting habitat, and native sagebrush would be reseeded in areas that have been previously disturbed.

Concentrations of livestock near leks or crucial winter habitat can disturb or displace sage-grouse. Therefore, livestock grazing would not be allowed in identified sage-grouse nesting habitat from March 1 to June 15. Also, livestock grazing would not occur in identified crucial winter habitat (sagebrush canopy cover of 10-30% and 10-14" height) from December 1 to March 31.

Alternative F (Preferred Alternative)

Sage-grouse management would utilize the 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana – Final for overall guidance and direction.

The BLM would consider mechanical treatment as the primary method and prescribed fire as a secondary method to remove conifers encroaching on sage-grouse habitat, except where forested habitat is limited.

The BLM would identify sage-grouse nesting habitat through field assessments. This alternative would require leaving adequate residual herbaceous cover beneath sagebrush

within nesting areas at the end of the grazing season to allow adequate cover for the next year's nesting (sagebrush canopy cover of 15-20% and a perennial herbaceous cover greater than 7", or at the highest potential for existing ecological site present, as determined by NRCS soil survey).

This alternative would require grazing permittees to avoid the placement of salt or mineral supplements near leks during the breeding season (March 1 to June 15). The placement of salt or mineral supplements by other entities would not be allowed. Supplemental winter feeding would not be allowed on sage-grouse crucial winter habitat and around leks, which have been occupied within the last 10 years.

This alternative would promote sage planting, where appropriate, on project areas (such as sites where sagebrush has been removed for crested wheat grass conversions) occurring with sage-grouse habitats and reclaim and/or reseed areas disturbed by treatments.

Concentrations of livestock near leks or crucial winter habitat can disturb or displace sage-grouse. Therefore, concentrations of livestock on leks or other key sage-grouse habitats would be avoided by using conservative stocking levels, locating salt or other supplements away from leks or crucial winter habitat, adjusting grazing seasons and locating water facilities where they would not jeopardize habitat.

Fish and Wildlife – Black-Tailed Prairie Dogs

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

Alternative A (Current Management)

In the West HiLine planning area, prairie dog towns smaller than 10 acres would not be actively managed. Should control measures be considered on any town larger than 10 acres, threatened and endangered or special interest species would be given priority and necessary mitigation would be developed prior to initiating any control measures.

In the Judith-Valley-Phillips planning area, prairie dog towns on BLM land in Fergus and Chouteau Counties would be maintained or managed based on the values or problems encountered (these problems could include the loss of vegetation and/or prairie dog habitat). Prairie dog towns on BLM land in Phillips County would be maintained at the 1988 survey level for recreational viewing, associated species and prairie dog shooting. Some small, isolated prairie dog towns (towns smaller than 10 acres or towns further than 10 km from another active town) may be

reduced or eradicated, if approved by the authorizing officer.

When poisoning is scheduled on a prairie dog town that includes state or private land, a cooperative effort would be made to control the entire town. The cost of poisoning for the state and private land would be the responsibility of the private landowner or the state land permittee.

Alternatives B, C, and D

Prairie dog management would utilize the Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana (Montana Prairie Dog Working Group 2002) for overall guidance and direction. Regional plans (based upon Montana Fish, Wildlife and Parks administrative regions) would be utilized when they are completed.

Prairie dogs towns would be allowed to expand as long as they are not adversely impacting adjacent private or state land, other resources, or affecting Standards for Rangeland Health (Appendix H). Prairie dog towns would be adversely impacting other resources, and controls could be considered, if prairie dog towns are: the source of or an exacerbation of invasive or noxious plants; substantially limiting forage and/or important habitat for wildlife species in the immediate area; substantially limiting forage for livestock in the immediate area; overriding the effectiveness of other management measures; or posing a substantial economic hardship or risk for other landowners, resulting from the need to control populations on private or state land because of prairie dogs on adjacent BLM land. Controls would not occur where mountain plover or burrowing owls have been documented using established habitat. Prairie dogs could be reestablished on historic towns which have been eradicated or which have died out due to bubonic plague. Specific actions to address adverse impacts to or from prairie dogs would be addressed through the watershed planning process and/or a site-specific environmental assessment.

Alternative E

Prairie dog management would utilize the Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana (Montana Prairie Dog Working Group 2002) for overall guidance and direction. Regional plans (based upon Montana Fish, Wildlife and Parks administrative regions) would be utilized when they are completed. However, under this alternative, prairie dogs towns in the Monument would be allowed to expand with no control measures. Treatments to encourage prairie dog expansion or reestablish historic prairie dog colonies could be authorized, including prescribed fire, mechanical vegetation control, salting or mineral supplements for livestock, and translocation to suitable habitat.

Alternative F (Preferred Alternative)

This alternative would be the same as Alternatives B, C and D.

Fish and Wildlife – Mitigation

The BLM's goal is to manage, enhance and protect the fish and wildlife habitat and special status species.

The following mitigating measures would be applied to surface-disturbing activities for identified/important wildlife habitat in the Monument. Mitigating measures would be applied during activity level planning, after an on-site evaluation indicates the presence of the specific resource. Exceptions to these mitigation measures may be granted by the authorized officer if an environmental review demonstrates there would be no adverse impacts, habitat for the species is not present in the area, or portions of the area can be occupied without affecting a particular species.

Alternative A (Current Management)

Greater Sage-grouse – The BLM would not authorize any surface disturbance within 500 feet of sage-grouse leks. Nor would the BLM allow any surface disturbance within strutting grounds during the nesting period (March 1 to June 30). This alternative would not authorize surface disturbance in sage-grouse crucial winter habitat from December 1 to May 15.

Black-tailed Prairie Dog – This alternative would not allow surface disturbance with 1/4 mile of occupied prairie dog towns that are habitat for species of special interest.

Designated Sensitive Species – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed site or the activity delayed for 60 days. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – This alternative may control or exclude surface-disturbing activities within 1/4 mile of essential habitat for the bald eagle.

Big Game Winter Range – Surface-disturbing activities would not be allowed on crucial wildlife winter ranges from December 1 to May 15.

Bighorn Sheep – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed site or the activity delayed for 60 days.

Alternative B

Greater Sage-grouse – The BLM would not authorize new surface disturbance within 1/4 mile of leks, nor would it allow new surface disturbance within nesting areas (a 2-mile radius of the lek) from March 1 to June 15. This alternative would not authorize any new surface disturbance in active sage-grouse crucial winter habitat from December 1 to March 31.

Black-tailed Prairie Dog – There would be no new surface disturbance authorized on any prairie dog towns.

Designated Sensitive Species – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed site or the activity delayed for 60 days. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – New surface-disturbing activities would not be allowed within 1 mile of active winter roosting areas from November 15 to February 29, if the disturbance could create an adverse impact. Surface-disturbing activities would also not be allowed within 1 mile of active bald eagle nest sites from February 1 to July 31, if the disturbance could create nest abandonment or failure.

Big Game Winter Range – Surface-disturbing activities would not be allowed on crucial wildlife winter ranges from December 1 to March 31.

Bighorn Sheep – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed site or the activity delayed for 60 days. New surface-disturbing activities would not be allowed within bighorn sheep lambing areas from April 1 to June 15, if such activities would adversely impact lamb survival.

Alternative C

Greater Sage-grouse – The BLM would not authorize new surface disturbance within 1/4 mile of leks, nor would it allow new surface disturbance within nesting areas (a 2-mile radius of the lek) from March 1 to June 15. This alternative would not authorize any new surface disturbance in active sage-grouse crucial winter habitat from December 1 to March 31.

Black-tailed Prairie Dog – New surface-disturbing activities would avoid or mitigate (routing proposed roads around a town or implementing timing stipulations) disturbance on prairie dog towns.

Designated Sensitive Species – New surface-disturbing activities may be controlled or excluded within 1/4 mile of

identified crucial habitat and active nests. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – This alternative would not allow new surface disturbance within 1/2 mile of an eagle nest that has been active in the last 7 years.

Big Game Winter Range – New surface-disturbing activities would not be allowed on crucial wildlife winter ranges from December 1 to March 31.

Bighorn Sheep – New surface-disturbing activities would not be allowed within bighorn sheep distribution areas from December 1 to March 31 and within bighorn sheep lambing areas from April 1 to June 15, if such activities would adversely impact lamb survival.

Alternative D

Greater Sage-grouse – The BLM would not authorize new surface disturbance within 1/4 mile of leks, nor would it allow new surface disturbance within nesting areas (a 2-mile radius of the lek) from March 1 to June 15. This alternative would not authorize any new surface disturbance in active sage-grouse crucial winter habitat from December 1 to March 31.

Black-tailed Prairie Dog – New surface disturbance would not be authorized within 1/4 mile of prairie dog towns, if that activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – New surface-disturbing activities may be controlled or excluded within 1/4 mile of identified crucial habitat and active nests. Surface-disturbing activities may also be controlled or excluded within 1/2 mile of active nests during the nesting period from March 1 to August 1. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – New surface-disturbing activities would not be allowed within 1/2 mile of an eagle nest that has been active in the last 7 years and within riparian area nesting habitat.

Big Game Winter Range – New surface-disturbing activities would not be allowed on crucial wildlife winter ranges from December 1 to May 15.

Bighorn Sheep – New surface-disturbing activities would not be allowed within bighorn sheep distribution areas from December 1 to March 31 and within 1 mile line-of-sight of bighorn sheep lambing areas, if such activities would adversely impact lamb survival.

Alternative E

Greater Sage-grouse – The BLM would not authorize new surface disturbance within 2 miles of leks, nor would it allow new surface disturbance within sage-grouse crucial winter habitat.

Black-tailed Prairie Dog – New surface disturbance would not be authorized within 1/4 mile of prairie dog towns if that activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – New surface-disturbing activities may be controlled or excluded within 1/2 mile of identified crucial habitat and active nests. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – New surface-disturbing activities would not be allowed within 1/2 mile of an eagle nest that has been active in the last 7 years and within riparian area nesting habitat.

Big Game Winter Range – New surface-disturbing activities would not be allowed on crucial wildlife winter ranges.

Bighorn Sheep – New surface-disturbing activities would not be allowed within bighorn sheep distribution areas and within 1 mile line-of-sight of bighorn sheep lambing areas, if such activities would adversely impact lamb survival.

Alternative F (Preferred Alternative)

Greater Sage-grouse – The BLM would not authorize new surface disturbance within 1/4 mile of active leks, nor would it allow new surface disturbance within nesting areas (a 2-mile radius of an active lek) from March 1 to June 15. This alternative would not authorize any new surface disturbance in active sage-grouse crucial winter habitat from December 1 to March 31.

Black-tailed Prairie Dog – New surface disturbance would not be authorized within 1/4 mile of prairie dog towns, if that activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – The BLM may control or exclude any new surface-disturbing activity within 1/4 mile of the proposed site or delay the activity for 90 days within identified crucial habitat and active nests. Surface-disturbing activities may also be controlled or excluded within 1/2 mile of active ferruginous hawk nests from March 1 to August 1. This determination would be made at the time of authorization and would be based on whether the sensitive species is present in the area of disturbance.

Bald Eagle – New surface-disturbing activities would not be allowed within 1/2 mile of an eagle nest that has been active in the last 7 years, if the disturbance could cause nest abandonment or failure.

Big Game Winter Range – New surface-disturbing activities would not be allowed on crucial wildlife winter ranges from December 1 to March 31. This timeframe could be shortened depending upon weather conditions, animal health and forage availability.

Bighorn Sheep – New surface-disturbing activities would not be allowed within bighorn sheep distribution areas from December 1 to March 31 and within bighorn sheep lambing areas from April 1 to June 15, if such activities would adversely impact lamb survival.

Vegetation

The BLM's goal is to manage for healthy vegetation communities that provide for a wide variety of long-term benefits such as aesthetics, wildlife, recreation, livestock grazing, etc. This includes achieving, or making significant progress toward proper functioning condition in riparian areas.

Alternative A (Current Management)

In riparian areas that have potential to support riparian vegetation, the BLM would, at its discretion, restore or establish native riparian vegetation. No additional guidance would be considered beyond the management detailed in the Vegetation section of Decisions Common to All Alternatives.

Reclamation would follow standard operating procedures. Previously disturbed sites would be allowed to reclaim naturally.

Alternative B

Activity plan updates, such as watershed plans or allotment management plans, would emphasize riparian habitat restoration and protection. In riparian areas that have potential to support riparian vegetation, the BLM would, at its discretion, restore or establish native riparian vegetation.

If the opportunity is available (through the cancellation or relinquishment of a livestock grazing permit or acquisition of additional land) the BLM would establish resource reserve grazing allotments. These allotments would be available to offset the impacts of drought or to implement projects such as prescribed fires, which could create a temporary loss of AUMs.

The BLM would determine in which priority non-native vegetation sites should be restored to a native species community. Priority ranking would be based on an emphasis to control highly invasive non-native species. Livestock grazing strategies such as adjusting grazing or rest seasons, adjusting stocking rates or stocking densities and the location of supplements could be used to achieve the vegetation goals outlined during allotment or watershed planning.

Surface-disturbed areas would be rehabilitated with native and non-native grasses, forbs and shrubs to minimize the potential for soil erosion and to provide forage and cover for wildlife and livestock.

Reclamation efforts would follow standard operating procedures. Where reclamation activities could cause more surface disturbance and natural reclamation is possible, disturbed surfaces would be allowed to reclaim naturally. The reclamation standards for all surface-disturbing activities would minimize erosion and establish native vegetation. For previously disturbed sites, a reclamation plan would be completed. Non-functional reservoirs, pits and water developments could be allowed to reclaim naturally if the reclamation activity would cause more unnecessary disturbance.

Alternative C

Activity plan updates, such as watershed plans or allotment management plans, would emphasize riparian habitat restoration and protection. In riparian areas that have potential to support riparian vegetation, the BLM would, at its discretion, restore or establish native riparian vegetation.

If the opportunity is available (through the cancellation or relinquishment of a livestock grazing permit or acquisition of additional land) the BLM would establish resource reserve grazing allotments. These allotments would be available to offset the impacts of drought or to implement projects such as prescribed fires, which could create a temporary loss of AUMs.

The BLM would determine in which priority non-native vegetation sites should be restored to a native species community. Priority ranking would be based on the size and site potential, the need to increase biodiversity, the benefits to wildlife and other resources and the effectiveness of the treatment and the ongoing maintenance requirements. Livestock grazing strategies (such as adjusting grazing or rest seasons, adjusting stocking rates or stocking densities and the location of supplements) could be used to achieve the vegetation goals outlined during allotment or watershed planning.

Surface-disturbed areas would be rehabilitated with native grasses, forbs and shrubs to minimize the potential for soil

erosion and to provide forage and cover for wildlife and livestock. Non-native plants may be used under special circumstances, such as emergency soil stabilization.

Reclamation efforts would follow standard operating procedures. Where reclamation activities could cause more surface disturbance and natural reclamation is possible, disturbed surfaces would be allowed to reclaim naturally. The reclamation standards for all surface-disturbing activities would minimize erosion and establish native vegetation. A reclamation plan would be completed for previously disturbed sites. Non-functional reservoirs, pits and water developments could be allowed to reclaim naturally if the reclamation activity would cause more unnecessary disturbance.

Alternative D

This alternative would be the same as Alternative B, except that the BLM would restore all non-native vegetation sites to a native species community. In Level 1, 2, and 3 campgrounds the BLM would, at its discretion, restore or establish native riparian vegetation. No planting of riparian vegetation would occur anywhere outside of Level 1, 2, or 3 campgrounds.

Livestock grazing strategies (adjusting grazing or rest seasons, stocking rates or stocking densities and the location of supplements) could be used to achieve the vegetation goals outlined during site-specific planning.

The reclamation standards for all surface-disturbing activities would attempt to recapture an area's pre-disturbance appearance. When the disturbance exceeds 1/10 acre, the area would be recontoured and revegetated. A reclamation plan would be completed for previously disturbed sites. If the reclamation effort would reduce the impacts created by development, the BLM would remove and rehabilitate non-functional reservoirs, pits, and water developments in WSAs or in other areas where there is viewshed infringement.

Alternative E

Site-specific activity plan updates, such as watershed plans or allotment management plans, would emphasize riparian habitat restoration and protection. In Level 1, 2, and 3 campgrounds BLM would, at its discretion, restore or establish native riparian vegetation. No planting of riparian vegetation would occur anywhere outside of Level 1, 2, or 3 campgrounds.

The BLM would not establish resource reserve allotments.

The BLM would restore all non-native vegetation sites to a native species community. Livestock grazing strategies

(adjusting grazing or rest seasons, stocking rates or stocking densities and the location of supplements) could be used to achieve the vegetation goals outlined during allotment or watershed planning.

The reclamation standards for all surface-disturbing activities would attempt to recapture an area's pre-disturbance appearance. When the disturbance exceeds 1/10 acre, the area would be recontoured and revegetated. A reclamation plan would be completed for previously disturbed sites. If the reclamation effort would reduce the impacts created by development, the BLM would remove and rehabilitate non-functional reservoirs, pits, and water developments in WSAs or in other areas where there is viewshed infringement.

Alternative F (Preferred Alternative)

Activity plan updates, such as watershed plans or allotment management plans, would emphasize sagebrush and riparian habitat restoration and protection. In riparian areas that have potential to support riparian vegetation BLM would, at its discretion, restore or establish native riparian vegetation.

If the opportunity is available (through the cancellation or relinquishment of a grazing permit or acquisition of additional land) the BLM would establish resource reserve grazing allotments. The Hay Coulee allotment would be a resource reserve allotment. These allotments would be available to offset the impacts of drought or to implement a project such as a prescribed fire which could create a temporary loss of AUMs.

The Monument would be managed to achieve a natural range of native plant associations, including measures to promote conservation of sensitive plant species. Management activities would not be allowed to substantially shift the makeup of native plant communities and associations or disrupt normal succession. However, there would be some circumstances where vegetation communities and associations would be shifted to meet specific management goals or objectives. These circumstances could include prescribed burns to reduce hazardous fuel loads, restoration of some habitat components in the interest of wildlife, treatments to control invasive species, etc.

The BLM would determine which priority non-native vegetation sites should be restored to a native species community. Priority ranking would be based on an emphasis to control highly invasive non-native species. To achieve the vegetation goals outlined during site-specific planning, livestock grazing strategies (adjusting grazing or rest seasons, adjusting stocking rates or stocking densities and the location of supplements) could be used to manage vegetation communities.

Surface-disturbed areas would be rehabilitated with native grasses, forbs and shrubs to minimize the potential for soil erosion and to provide forage and cover for wildlife and livestock. Non-native plants may be used under special circumstances, such as emergency soil stabilization.

Reclamation efforts would follow standard operating procedures. In some areas, disturbed surfaces would be allowed to reclaim naturally. For all surface-disturbing activities, the intent of the reclamation standards would be to minimize erosion and establish native vegetation. If the reclamation effort would reduce the impacts created by development, the BLM would remove and rehabilitate non-functional reservoirs, pits and water developments in WSAs or in other areas where there is viewshed infringement.

Range Improvements

The BLM's goal is to manage for healthy vegetation communities that provide for a wide variety of long-term benefits such as aesthetics, wildlife, recreation, livestock grazing, etc.

Alternative A (Current Management)

The BLM would follow the standard specifications for fence installation to mitigate risks to wildlife. However, some existing fences may restrict wildlife movement, especially big game.

On some terminal ridges, installation of water developments may be limited to avoid unnecessary competition between deer and livestock. To facilitate livestock watering, tanks could be placed in some allotments where it would be advantageous to improving resource values. All tanks would have bird escape ramps installed to reduce the possibility of birds and small mammals drowning. Proposed winter water tanks would be located away from private lands to encourage elk to increase their use of BLM land, which could reduce depredation on croplands.

Alternatives B, C, and D

The BLM fence specifications would be followed with allowances for certain classes or types of livestock. Four-wire fences could be authorized if the class or kind of livestock necessitate the need for a more substantial fence. The BLM would modify existing fences that are creating barriers to wildlife movement. In isolated cases, the BLM would relocate fences to better fit with topography and management needs.

Any new water developments would be considered on a site-specific basis and would consider the benefits/detriment to all resources. Decisions about installing water developments would be based on grazing practices and wildlife habitat needs within a specific use area. A site

should only be developed if the development would improve resource values. Site-specific planning would be used to make these determinations.

Alternative E

BLM fence specifications would be followed. Four-wire fences would not be allowed under any circumstance. The BLM would modify all existing fences to standards, even if the fence does not restrict wildlife movement. Fences that are poorly located within their surrounding topography would be relocated. Site-specific watershed plans would be modified to accommodate changes to allotment boundaries and the resulting change in carrying capacity.

Any new water developments would be considered on a site-specific basis and would consider the benefits/detriment to all resources. Decisions about installing water developments would be based on grazing practices and wildlife habitat needs within a specific use area. A site should only be developed if the development would improve resource values. Site-specific planning would be used to make these determinations.

Alternative F (Preferred Alternative)

The BLM fence specifications would be followed with allowances for certain classes or types of livestock. Four-wire fences could be authorized if the class or kind of livestock necessitate the need for a more substantial fence. The BLM would modify existing fences that are creating barriers to wildlife movement. In isolated cases, the BLM would relocate fences to better fit with topography and management needs.

Any new water developments would be considered on a site-specific basis and would consider the benefits/detriment to all resources. Decisions about installing water developments would be based on grazing practices and wildlife habitat needs (big game, migratory birds, sage-grouse, amphibians, etc.) within a specific use area. A site should only be developed if the development would improve resource values. Site-specific planning would be used to make these determinations.

Visual Resources

The BLM's goal is to protect the cultural landscape (viewshed) and the visual features in the landscape that are identified in the Proclamation.

Alternative A (Current Management)

The Monument is currently divided into Visual Resource Management (VRM) Class I, II, III and IV ratings as shown in Table 2.4.

<p style="text-align: center;">Table 2.4 Visual Resource Management Class Designations</p>						
<i>VRM Class</i>	<i>Alt. A (Current Management) Acres</i>	<i>Alt. B Acres</i>	<i>Alt. C Acres</i>	<i>Alt. D Acres</i>	<i>Alt. E Acres</i>	<i>Alt. F (Preferred Alternative) Acres</i>
Class I	61,700	111,480	111,480	111,480	111,480	111,480
Class II	118,800	44,520	161,560	263,520	263,520	161,560
Class III	8,200	105,000	101,960	0	0	24,770
Class IV	186,300	114,000	0	0	0	77,190

In all areas, surface-disturbing activities, semi-permanent and permanent facilities may require special designs (location, painting and camouflage) to blend with the natural surroundings and to meet the intent of the visual quality objectives.

Alternative B

The WSAs, wild segments of the UMNWSR, and the Bodmer Landscapes would be designated as VRM Class I. The Bodmer Landscapes are fan-shaped viewsheds associated with each of Karl Bodmer's illustrative drawings along the Missouri River. The remaining portions of the Monument would be designated as VRM Class II, III or IV (Table 2.4). If the WSAs are determined by Congress as not eligible, they would be managed consistent with adjacent BLM land.

In all areas, surface-disturbing activities, semi-permanent and permanent facilities may require special designs (location, painting and camouflage) to blend with the natural surroundings and to meet the intent of the visual quality objectives.

Alternative C

The WSAs, wild segments of the UMNWSR, and the Bodmer Landscapes would be designated as VRM Class I. The remaining portions of the Monument would be designated as VRM Class II or III (Table 2.4). If the WSAs are determined by Congress as not eligible, they would be managed consistent with adjacent BLM land.

In VRM Class I areas, the BLM would reduce the visual contrast on BLM land in the existing landscape by utilizing proper site selection; reduction of soil and vegetative disturbance; choice of color; and over time, return the disturbed area to a seamless, natural landscape.

In VRM Class II and III areas all surface-disturbing activities, semi-permanent and permanent facilities may require special design including location, painting and camouflage

to blend with the natural surroundings and meet the intent of the visual quality objectives.

Alternative D

The WSAs, wild segments of the UMNWSR, and the Bodmer Landscapes would be designated as VRM Class I. The remaining portions of the Monument would be designated as VRM Class II (Table 2.4). If the WSAs are determined by Congress as not eligible, they would be managed consistent with adjacent BLM land.

In VRM Class I areas the BLM may prohibit surface-disturbing activities if such activities are not designed to meet the intent of the visual quality objectives.

In VRM Class II areas the BLM would reduce the visual contrast on BLM land in the existing landscape by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape.

Alternative E

The WSAs, wild segments of the UMNWSR, and the Bodmer Landscapes would be designated as VRM Class I. The remaining portions of the Monument would be designated as VRM Class II (Table 2.4). If the WSAs are determined by Congress as not eligible, they would be managed consistent with adjacent BLM land.

In VRM Class I and II areas, the BLM may prohibit surface-disturbing activities if such activities are not designed to meet the intent of the visual quality objectives.

Alternative F (Preferred Alternative)

The WSAs, wild segments of the UMNWSR, and the Bodmer landscapes would be designated as VRM Class I. The remaining portions of the Monument would be designated as VRM Class II or III as shown on Map A and in Table 2.4. If the WSAs are determined by Congress as not

eligible, they would be managed consistent with adjacent BLM land.

In VRM Class I areas the BLM may prohibit surface-disturbing activities if such activities are not designed to meet the intent of the visual quality objectives.

In VRM Class II, Class III and Class IV areas the BLM would reduce the visual contrast on BLM land in the existing landscape by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape.

Forest Products

The BLM's goal is to manage these BLM lands in a manner that provides a healthy ecosystem that achieves a sustainable natural variation of vegetation communities, which provides current and future generations with the social and economic benefits compatible with the Proclamation.

Alternative A (Current Management)

It is not BLM's intent to conduct forest product sales within the Monument. However, vegetative use areas for forest products (post/pole/house logs/firewood/Christmas trees and incidental harvest related to activities such as road building or gas well site development) would be identified at BLM's discretion, as long as the resources for which the Monument was established are not adversely impacted. Also, before these products are lost to prescribed fire or mechanically cleared for fuel reduction, the BLM may consider a forest product sale.

Forest products would be available for sale outside of the WSAs and UMNWSR. The sale of forest products may be permitted and would undergo an environmental analysis during the site-specific evaluation phase.

Recreational use of forest products within the UMNWSR would be limited to dead-and-down material.

Each BLM office could establish areas for personal use forest product sales. Oftentimes, forest product personal use permits are issued for non-specific geographical areas, unless a specific product area is identified.

Alternatives B and C

Any commercial forest product sales (post/pole/house logs/firewood/Christmas trees and incidental harvest related to activities such as road building or gas well site development) would be incidental and associated with other projects/

activities and vegetative goals or objectives as outlined in activity plans. Where forest/woodland health is in jeopardy, minimal impact wood product harvesting techniques may be pursued.

The Monument manager could designate incidental non-commercial or personal use areas for cutting Christmas trees, post and pole, firewood, or logs cut for private use.

Alternative D

Where forest/woodland health is in jeopardy, minimal impact wood product harvesting techniques may be pursued.

The Monument manager could designate incidental non-commercial or personal use areas for cutting Christmas trees and firewood. Under a permit, individuals would be allowed to utilize material from wildland fires.

Alternative E

Commercial product sales and incidental personal use would be prohibited.

Alternative F (Preferred Alternative)

Where forest/woodland health is in jeopardy, minimal impact harvesting techniques which are appropriate for soil and topographical conditions may be pursued.

The Monument manager could designate incidental non-commercial or personal use areas for cutting Christmas trees and firewood. Under a permit, individuals could be allowed to utilize incidental material. The permit would address the specific type of material and conditions under which removal would occur.

Right-of-Way Corridors, Avoidance Areas, and Exclusion Areas

The BLM's goal is to provide reasonable access for the administrative needs and authorized uses of private landowners, industry and government agencies.

Alternative A (Current Management)

Seven utility and transportation corridors cross the Missouri River in the Monument (Table 2.5).

Avoidance areas for lineal rights-of-way (ROWs) include the Stafford Wilderness Study Area (WSA), the Ervin Ridge WSA, that portion of the Cow Creek WSA in Blaine County, the Cow Creek Area of Critical Environmental

<p>Table 2.5 Utility and Transportation Corridors</p>	
<i>River Mile</i>	<i>Utility and Transportation Corridor</i>
River Mile 0 to 1	State Highway #80 from Fort Benton to Stanford crosses the UMNWSR at Fort Benton. The road is located entirely on private land. At this location the Wild and Scenic River is bank to bank; therefore this corridor does not impact BLM land.
River Mile 20 to 21	A buried telephone line (M59069) parallels the county road (M78762) that connects Loma with Geraldine. The telephone and road cross a small portion of BLM land in Section 18, T25N R10E.
River Mile 38.5 to 39.5	A power line is located where the Ferry crosses the UMNWSR at Virgelle. The Wild and Scenic River is bank to bank in this location. The power line does not encumber BLM land
River Mile 88 to 89	Secondary Highway #236 extends southeast from Big Sandy and across the PN Bridge to Winifred. A power line (M59070) and an underground telephone line (M39347A) are located along this road and cross several miles of BLM land on the south side of the Missouri River.
River Mile 101 to 103	The McClelland (Lloyd)/Stafford Ferry road, which connects Chinook, north of the Monument, with Winifred, south of the Monument, crosses BLM land both north and south of the Missouri River. A power line (M24219) that provides power to the Ferry runs alongside the road on BLM land on the south side of the Monument.
River Mile 131.5 to 132.5	The DY Trail crosses BLM land and accesses the south bank of the Missouri River in Fergus County across from the location of the old Power Plant Ferry. The Bull Creek/Power Plant Ferry road crosses BLM land in Phillips County and leads to the abandoned ferry location on the north bank of the Missouri River. No utilities are located along these roads.
River Mile 148.5 to 149.5	U.S. Highway #191 (M013368) extends from Malta to Lewistown crossing the Monument near its eastern boundary. A power line (M052239) and a buried telephone line (M049342) parallel the highway; both are located on about a mile of BLM land, east of the highway in this area.

Concern (ACEC), riparian areas and areas containing sedimentary Breaks soils. The recreational and scenic sections of the UMNWSR would continue as avoidance areas.

Exclusion areas include the wild sections of the UMNWSR; the Dog Creek, Woodhawk, and Antelope Creek WSAs; and that portion of the Cow Creek WSA in Phillips County. If the WSAs are not designated by Congress as wilderness and released from WSA status, they would be managed consistent with adjacent BLM land.

Alternative B

In addition to the seven utility and transportation corridors that cross the Missouri River (Table 2.5), the Klabzuba pipeline would also be designated a corridor (Table 2.6). The utility and transportation corridors on BLM land would

have defined boundaries within 1/2 mile of the centerline of the following roads: U.S. Highway 191; State Secondary Highway #236; the Lloyd/Stafford Ferry road; DY Trail/Power Plant Ferry Road; and the Klabzuba pipeline. The corridors at Fort Benton, Loma and Virgelle would retain their current status.

<p>Table 2.6 Klabzuba Pipeline Corridor</p>	
<i>River Mile</i>	<i>Utility and Transportation Corridor</i>
River Mile 103 to 105	The Klabzuba natural gas pipeline M41268 crosses BLM land both north and south of the Missouri River.

Avoidance areas for ROWs would include the scenic sections of the UMNWSR, the Bodmer Landscapes, the Cow Creek ACEC, cultural/historic sites, riparian and wetland areas, areas containing unique geologic formations, areas containing highly erosive soils (sedimentary Breaks soils), and sage-grouse seasonal habitat unless the infrastructure is buried.

Exclusion areas would include the wild sections of the UMNWSR and the six WSAs, pending determinations by Congress. If the WSAs are not designated by Congress as wilderness and released from WSA status, they would be managed consistent with adjacent BLM land.

Alternative C

This alternative would be the same as Alternative B, except if the WSAs are not designated by Congress as wilderness and released from WSA status, they would be managed as avoidance areas.

Alternatives D and E

These alternatives would be the same as Alternative B, except if the WSAs are not designated by Congress as wilderness and released from WSA status, they would be managed as exclusion areas.

Alternative F (Preferred Alternative)

In addition to the seven utility and transportation corridors that cross the Missouri River (Table 2.5), the Klabzuba pipeline would also be a designated corridor (Table 2.6). The utility and transportation corridors on BLM land would have defined boundaries within 1/2 mile of the centerline of the following roads: U.S. Highway 191; State Secondary Highway #236; the Lloyd/Stafford Ferry road; DY Trail/Power Plant Ferry Road; and the Klabzuba pipeline. The corridors at Fort Benton, Loma and Virgelle would retain their current status.

Avoidance areas for ROWs would include the scenic sections of the UMNWSR, the Bodmer Landscapes, the Cow Creek ACEC, cultural/historic sites, riparian and wetland areas, areas containing unique geologic formations, areas considered unsuitable due to erosion and slope, and sage-grouse seasonal habitat where impacts could not be mitigated or effectively controlled. If the WSAs are not designated by Congress as wilderness and released from WSA status, they would be managed as avoidance areas.

Exclusion areas would include the wild sections of the UMNWSR and the six WSAs, pending determinations by Congress. Exceptions to exclusion areas could be granted and would be handled in a site-specific environmental assessment on a case-by-case basis, based on the nature of

the action and level of impact. This exception clause is considered necessary due to the potential installation of an oil and gas pipeline which would enter on state land south of the Missouri River and exit on private land north of the Missouri River, but would cross under the river and under the Stafford WSA.

Land Ownership Adjustment

Alternative A (Current Management)

No BLM land would be identified for disposal. Any BLM land identified for disposal in the future would meet the criteria discussed in the Decisions Common to All Alternatives portion of this chapter and a plan amendment would be completed.

Alternatives B, C, D, E, and F (Preferred Alternative)

The following BLM land is identified for disposal and meets the criteria discussed in Decisions Common to All Alternatives: T22N R16E, E2NE of sec. 15 (80 acres). The parcel is on the edge of the Monument, contains minimal Breaks topography, and contains no objects for which the Monument was designated. The BLM land would be exchanged for private land identified as T22N R15E, sec. 3, Lot 5 (24.60 acres) and sec. 4, Lot 8 (46.52 acres). This land exchange proposal was initiated by the private landowner in March 2002.

Fire

The BLM's goal is to control wildland fire safely, efficiently and with minimal impact to resource values while minimizing the risk of catastrophic fire within the Monument and communities adjacent to the Monument. This includes maintaining or reestablishing the natural influence of fire on vegetation communities and associations.

The Monument includes four fire management units: Wild and Scenic River, Wilderness Study Areas, North Monument and South Monument (Map B). Fire management alternatives for these fire management units (FMU) would be based on the options listed in Table 2.7 for wildland fire suppression and prescribed fire.

Alternative A (Current Management)

The current fire management guidance, based on the State Director's Interim Guidance (BLM 2001a), would continue. The wildland fire suppression options and prescribed fire options for the FMUs are shown in Table 2.8. The

<p>Table 2.7</p> <p>Options for Wildland Fire Suppression and Prescribed Fire</p>	
<i>Option</i>	<i>Description of Fire Suppression Option</i>
Aggressive	All fires would be suppressed aggressively using all available methods. The focus of this strategy would be to limit acres burned. Cost would not be a consideration in most cases.
Appropriate	Appropriate suppression response would be based on firefighter and public safety considering the natural role of fire (fire regime and condition class (FRCC)). Fires would be managed using less than full suppression in most cases and allowed to burn to natural barriers or roads. Cost of the suppression activity would also be considered.
Wildland Fire Use	A wildland fire use plan would be developed. Areas would be identified where fire would be used under prescription based on FRCC and the goal to return fire to a natural role on the Monument landscape.
<i>Option</i>	<i>Description of Prescribed Fire Option</i>
None	No prescribed fire use would be allowed.
Safety and Habitat	Prescribed fire would be used based on public safety (fuel hazard reduction) and resource issues (range improvement, wildlife habitat).
Natural Role of Fire	Prescribed fire would be used based on FRCC and the goal to return fire to a natural role on the Monument landscape with very few constraints.

<p>Table 2.8</p> <p>Wildland and Prescribed Fire Options – Alternative A (Current Management)</p>		
<i>Fire Management Unit</i>	<i>Wildland Fire Suppression Strategy</i>	<i>Prescribed FireUse Based On</i>
Wild and Scenic River	Appropriate	Safety and Habitat
Wilderness Study Areas	Appropriate	Safety and Habitat
North Monument	Appropriate	Safety and Habitat
South Monument	Appropriate	Safety and Habitat

appropriate, suppression response to wildland fires in all of the fire management units would be based on firefighter and public safety while considering the role of fire. Fires would be managed using less than full suppression efforts and, in most cases, would be allowed to burn to natural barriers or roads. The cost of suppression would also be considered.

Prescribed burns could be used in all of the FMUs, based on public safety and resource issues.

Alternative B

Wildland fire suppression efforts would be more aggressive. The BLM could pursue limited use of prescribed fire,

based on public safety and property protection. The wild-land fire suppression options and prescribed fire options for the FMUs are shown in Table 2.9. Wildland fires in all of the FMUs would be suppressed aggressively using all available methods, including mechanical means. The focus of this strategy would be to limit the number of acres burned. Cost would not be a consideration in most cases.

Prescribed fires would not be used in three of the FMUs (Wild and Scenic River, North Monument and South Monu-ment). Prescribed fire in the WSAs could be used based on public safety and resource issues.

<p>Table 2.9 Wildland and Prescribed Fire Options – Alternative B</p>		
<i>Fire Management Unit</i>	<i>Wildland Fire Suppression Strategy</i>	<i>Prescribed Fire Use Based On</i>
Wild and Scenic River	Aggressive	None
Wilderness Study Areas	Aggressive	Safety and Habitat
North Monument	Aggressive	None
South Monument	Aggressive	None

Alternative C

The BLM would have more discretion in its fire management response, but the emphasis would remain on public safety and protection. The wildland fire suppression options and prescribed fire options for the FMUs are shown in Table 2.10.

Wildland fires in three of the FMUs (Wild and Scenic River, North Monument and South Monument) would be suppressed aggressively using all available methods, including mechanical means. The focus would be to limit the number of acres burned. The appropriate suppression response to fires in WSAs would be based on firefighter and public safety while considering the natural role of fire. Fires would be managed using less than full suppression and, in most cases, would be allowed to burn to natural barriers or roads. The cost of suppression would also be considered.

Prescribed fires would not be used in the Wild and Scenic River FMU. In the other three FMUs (Wild and Scenic River, North Monument and South Monument) prescribed fire could be used based on public safety and resource issues.

Alternative D

The BLM would increase its management responsiveness based on a wide range of fire management tools available and more management flexibility. The wildland fire sup-

pression options and prescribed fire options for the FMUs are shown in Table 2.11.

The appropriate management response to wildland fires in three of the FMUs (Wilderness Study Areas, North Monument and South Monument) would be based on firefighter and public safety while considering the natural role of fire. Fires would be managed at less than full suppression and, in most cases, allowed to burn to natural barriers or roads. The cost of suppression would also be considered. Wildland fires in the Wild and Scenic River FMU would be suppressed aggressively using all available methods, including mechanical means. The focus would be to limit the number of acres burned. Cost would not be a consideration in most cases.

Prescribed fire in the Wild and Scenic River FMU would be based on public safety and resource issues. In the other three FMUs (Wilderness Study Areas, North Monument and South Monument) prescribed fire would be used based on flexibility to respond to changing conditions and the goal of retuning fire to a natural role in the Monument landscape with very few constraints.

Alternative E

This alternative would emphasize natural processes with minimal intervention. The management response would be subtle and provide the least intensive management approach. The wildland fire suppression options and prescribed fire options for the FMUs are shown in Table 2.12.

<p>Table 2.10 Wildland and Prescribed Fire Options – Alternative C</p>		
<i>Fire Management Unit</i>	<i>Wildland Fire Suppression Strategy</i>	<i>Prescribed Fire Use Based On</i>
Wild and Scenic River	Aggressive	None
Wilderness Study Areas	Appropriate	Safety and Habitat
North Monument	Aggressive	Safety and Habitat
South Monument	Aggressive	Safety and Habitat

Table 2.11 Wildland and Prescribed Fire Options – Alternative D		
<i>Fire Management Unit</i>	<i>Wildland Fire Suppression Strategy</i>	<i>Prescribed Fire Use Based On</i>
Wild and Scenic River Wilderness Study Areas North Monument South Monument	Aggressive Appropriate Appropriate Appropriate	Safety and Habitat Natural Role of Fire Natural Role of Fire Natural Role of Fire

Table 2.12 Wildland and Prescribed Fire Options – Alternative E		
<i>Fire Management Unit</i>	<i>Wildland Fire Suppression Strategy</i>	<i>Prescribed Fire Use Based On</i>
Wild and Scenic River Wilderness Study Areas North Monument South Monument	Appropriate Wildland Fire Use Wildland Fire Use Wildland Fire Use	Safety and Habitat Natural Role of Fire Natural Role of Fire Natural Role of Fire

The BLM would develop a fire use plan for wildland fires in three of the FMUs (Wilderness Study Areas, North Monument and South Monument). This plan would identify areas where wildland fire would be used under prescription, based on flexibility to respond to changing conditions and the goal of returning fire to a natural role in the Monument landscape. The appropriate suppression response to fires in the Wild and Scenic River FMU would be based on firefighter and public safety, while considering the natural role of fire. Fires would be managed using less than full suppression efforts and, in most cases, would be allowed to burn to natural barriers or roads. The cost of suppression would also be considered.

Prescribed fires could be used in three of the FMUs (Wilderness Study Areas, North Monument and South Monument) based on the flexibility to respond to changing conditions and the goal of returning fire to a more natural role on the Monument landscape. Prescribed fire in the Wild and Scenic River FMU would be based on public safety and resource issues.

Alternative F (Preferred Alternative)

The BLM’s response would be based on a wide range of fire management tools available and more management flexibility to respond to changing conditions. The wildland fire suppression options and prescribed fire options for the FMUs are shown in Table 2.13.

The appropriate suppression response to all wildland fires would be based on firefighter and public safety, while considering the natural role of fire. Fires would be managed with less than full suppression efforts and, in most cases, allowed to burn to natural barriers or roads. The cost of suppression would also be considered. Resource values, such as sage-grouse habitat, would be protected during wildland fire suppression through the knowledge of resource advisors assigned to wildland fire incidents and/or information on the location of critical resource areas available to incident commanders; however, protection for resource values would be secondary to life safety and property values.

Table 2.13 Wildland and Prescribed Fire Options – Alternative F (Preferred Alternative)		
<i>Fire Management Unit</i>	<i>Wildland Fire Suppression Strategy</i>	<i>Prescribed Fire Use Based On</i>
Wild and Scenic River Wilderness Study Areas North Monument South Monument	Appropriate Appropriate Appropriate Appropriate	Safety and Habitat Natural Role of Fire Natural Role of Fire Natural Role of Fire

Prescribed fires could be used in three of the FMUs (Wilderness Study Areas, North Monument and South Monument) based on the flexibility to respond to changing conditions and the goal of returning fire to a more natural role on the Monument landscape. Prescribed fire in the Wild and Scenic River FMU would be based on public safety and resource issues.

Wild and Scenic Rivers (Cow Creek, Eagle Creek and Dog Creek)

The Wild and Scenic Rivers Act (Pub. L. 90-542 as amended; 16 U.S.C. 1271-1287) established a method for providing federal protection for certain of our country's remaining free-flowing rivers, preserving them and their immediate environments for the use and enjoyment of present and future generations. Rivers are included in the system so that they may benefit from the protective management and control of development for which the Act provides. Appendix I is the Wild and Scenic River Eligibility and Suitability Report for the Monument.

The BLM inventoried 66 streams and found three streams eligible for inclusion in the National Wild and Scenic Rivers system: Cow Creek, Eagle Creek, and Dog Creek.

Alternative A (Current Management)

The BLM would not make a recommendation on suitability. The three eligible stream segments would be managed to protect their outstanding remarkable values.

Alternatives B, C, and D

The BLM would not recommend the three eligible stream segments as suitable for inclusion in the National Wild and Scenic Rivers system. Management for each area would be provided by the guidance in the Monument RMP.

Alternative E

The BLM would recommend the three eligible stream segments as suitable for inclusion in the National Wild and Scenic Rivers system. Management for each area would be provided by the guidance in the Monument RMP.

Alternative F (Preferred Alternative)

This alternative would be the same as Alternatives B, C and D.

Visitor Use, Services and Infrastructure

This section is organized in the following format:

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Recreation

The BLM's goal is to preserve historic and cultural values and sites by enhancing public awareness or protection of the resources.

This section addresses management for the entire Upper Missouri River Breaks National Monument and would apply to all the recreation management areas.

Alternative A (Current Management)

Recreation Management Areas – The BLM would continue with the four special recreation management areas (SRMAs) for BLM land. The SRMAs do not follow a legal boundary. They are simply areas delineated for specific recreation management focus. The SRMAs include the South Phillips SRMA, the Judith Extensive SRMA, the North Missouri Breaks SRMA, and the Upper Missouri River SRMA. These SRMAs include BLM land in and outside of the Monument.

Fees – The BLM would continue the \$6 per vehicle expanded amenity fee for overnight camping at the James Kipp Recreation Area.

Expanded amenity fees collected for camping would be returned to the Lewistown Field Office and used at the James Kipp Recreation Area. The fees would be used for site maintenance and visitor services improvements as established in the Federal Land Recreation Enhancement Act (FLREA).

Gateway communities – The BLM would encourage private sector initiatives as a means of developing river visitor use opportunities. The UMNWSR offers a wide range of visitor opportunities, only some of which can be financed by the BLM. To overcome these limitations, non-governmental entities, either individuals or institutions, could help accomplish initiatives compatible with management objectives. These initiatives may or may not generate profit or result in permanent facilities.

A wide variety of activities can be generated by private sector initiatives. Services for boats or horses, overnight or extended-stay lodging facilities, food/water and other provision sales and guiding are services traditionally offered in this way. Other opportunities may be created by using the UMNWSR for touring and instructional purposes, for the development of privately funded research, and for expanded regional promotional activities.

Research, collection and special events – The BLM would authorize archaeological and historical investigations. Prehistoric sites would be evaluated and then monitored, protected or excavated based on their scientific value

and what they could add to the body of knowledge and interpretation opportunities. Historic sites would be evaluated and then monitored or maintained based on their historic value, the attraction they have for visitors and their use as safety shelters.

The BLM would allow and authorize paleontological research. All BLM land is closed to commercial collecting of paleontological resources under existing policy and regulation (BLM Manual 8270). Permits are issued to accredited institutions to conduct activity on BLM land to ensure that the resource is used for public display and education purposes only. Scientific use allows for survey/reconnaissance or limited excavation work with a minimum amount of surface disturbance, as long as such work is conducted under a paleontological permit and maintains the values for which the Monument was established.

The collection of common invertebrate fossils and petrified wood for personal use would be allowed as limited by the regulations (43 CFR 3620 and 8365).

The personal collection of plant material (e.g., vegetation, seeds and berries) would be allowed. Wildcrafting or commercial collection of plant materials would not be allowed without a specific permit.

The use of metal detectors would be allowed by permit only. A permit for metal detector use may be authorized by the Monument manager when determined to be in the interest of the public and consistent with the goals of the Monument. Metal detectors, magnetometers or other remote sensing equipment may also be allowed for administrative purposes or public health and safety uses as determined by the Monument manager.

Special recreation permit applications for activities or events may be granted, if the activity would not impact the resources or values for which the Monument was designated. Large group events would be authorized subject to restrictions to protect resources. These restrictions may include, but would not be limited to, the designation of specific roads or trails for a particular event, limitations on parking, use of campfires, sanitation requirements, and the number of people involved in the event.

Recreation in sensitive wildlife habitat – The BLM would allow the personal collection of shed antlers (horn hunting). However, the BLM could implement a seasonal restriction on the disturbance of shed antlers to protect wildlife during the winter, if harassment is a problem.

Recreational use of islands would not be permitted during deer and waterfowl reproduction (e.g., fawn birthing, nesting and brood rearing) periods. Camping on BLM islands in the Missouri River would be discouraged from April 1 to July 31.

Interpretive sites – Interpretation of cultural and geological sites would occur on a case-by-case basis. Some areas would be developed for self-guided interpretive study because of their geological, historical, cultural, paleontological or natural values. Prior to developing interpretive sites for cultural resources, the sites would be evaluated and criteria developed to minimize any potential negative impacts to critical resources. These developments may include interpretive signs and displays that would be consistent with visual resource management objectives. The cultural sites that could be developed include Stafford Ferry, Cow Creek, Evans Bend, Steamboat Point, Little Sandy and Hole-in-the-Wall. Other sites may be developed if substantial public use occurs, if BLM acquires important land, or major new resource discoveries are made.

Alternative B

Recreation Management Areas – The Monument would be included in two special recreation management areas: Upper Missouri River SRMA and Uplands SRMA (Map C). The Upper Missouri River SRMA includes BLM land from Fort Benton downstream to Arrow Creek and the entire UMNWSR. The Uplands SRMA includes BLM land both north and south of the UMNWSR downstream from Arrow Creek to the James Kipp Recreation Area.

Fees – The BLM would discontinue the fee system at the James Kipp Recreation Area and would not implement a recreation user fee system at additional sites.

Gateway communities – The BLM would strive to provide a staffed visitor information site in Chinook, Big Sandy and Winifred or partner with these gateway communities to provide visitor information.

The BLM would encourage private sector initiatives as a means of developing river visitor use opportunities. The Monument offers a wide range of visitor opportunities, only some of which can be provided by the BLM. To overcome these limitations, non-governmental entities, either individuals or institutions, could help accomplish initiatives compatible with the Monument. These initiatives would not result in permanent facilities in the Monument.

A wide variety of activities can be generated by private sector initiatives. Services for boats or horses, overnight or extended-stay lodging facilities, food/water and other provision sales and guiding are services traditionally offered in this way. Other opportunities may be created by using the Monument for touring and instructional purposes and for expanded regional promotional activities.

Research, collection and special events – The BLM would authorize archaeological and historical investigations. Prehistoric sites would be evaluated and then moni-

tored, protected or excavated based on their scientific value and what they could add to the body of knowledge and interpretation opportunities. Historic sites would be evaluated and then monitored or maintained based on their historic value, the attraction they have for visitors and their use as safety shelters.

The BLM would allow and authorize paleontological research. All BLM land is closed to commercial collecting of paleontological resources under existing policy and regulation (BLM Manual 8270). Permits are issued to accredited institutions to conduct activity on BLM land to ensure that the resource is used for public display and education purposes only. Scientific use allows for survey/reconnaissance or limited excavation work with a minimum amount of surface disturbance, as long as such work is conducted under a paleontological permit, and maintains the values for which the Monument was established.

The collection of common invertebrate fossils and petrified wood for personal use would be allowed in specific identified areas, as limited by the regulations (43 CFR 3620 and 8365).

The personal collection of plant material (e.g., vegetation, seeds and berries) would be allowed. Wildcrafting or commercial collection of plant materials would not be allowed without a specific permit.

The use of metal detectors would be allowed by permit only. A permit for metal detector use may be authorized by the Monument manager when determined to be in the interest of the public and consistent with the goals of the Monument. The use of metal detectors without a permit may be authorized in certain areas. Metal detectors, magnetometers or other remote sensing equipment may also be allowed for administrative purposes or public health and safety uses as determined by the Monument manager.

Special recreation permit applications for activities or events may be granted, if the activity would not impact the resources or values for which the Monument was designated. Large group events would be authorized subject to restrictions to protect resources. These restrictions may include, but would not be limited to, the designation of specific roads or trails for a particular event, limitations on parking, use of campfires, sanitation requirements, and the number of people involved in the event.

Recreation in sensitive wildlife habitat – The BLM would allow the personal collection of shed antlers (horn hunting). However, the BLM could implement a seasonal restriction on the disturbance of shed antlers to protect wildlife during the winter, if harassment is a problem.

There would be no restrictions concerning camping on BLM islands in the Missouri River.

Interpretive sites – Historic, archaeological and geological opportunities on BLM land would be enhanced by developing the interpretive potential at selected sites. Interpretive sites would be developed with explanatory signs, exhibits and trails.

Topics for interpretation would be selected based on access, information potential and the potential to provide important segments of the area's history or prehistory via interpretation. Some potential cultural sites for interpretation would include Decision Point; Eagle Creek; Murray/PN dugout; Hagadone, Middleton, Ervin, Gist, Cable, and Nelson homesteads; Gilmore cabin; Nez Perce Trail; and the sites associated with the Lewis and Clark Expedition. Other possible interpretive sites and topics include prehistoric sites and the steamboat era on the Missouri River.

Some potential geological interpretive sites would include the stratigraphic cross section of the Missouri River from Virgelle to the James Kipp Recreation Area showing the regional dip of beds starting in Colorado Shale and ending in Bearpaw Shale; the glacial geomorphology and paleo channel of the Missouri River at Little Sandy Creek; the igneous dike known as the Grand Natural Wall from the Lewis and Clark Journal entry; Hole-in-the-Wall; the Big Sag at Judith Landing; Sugarloaf Rock fault plane vs. bedding plane at Stafford Ferry; the diatreme at Gist Bottom; and the invertebrate paleo site at Woodhawk.

Alternative C

Recreation Management Areas – The Monument would be included in two special recreation management areas: Upper Missouri River SRMA and Uplands SRMA (Map C). The Upper Missouri River SRMA includes BLM land from Fort Benton downstream to Arrow Creek and the entire UMNWSR. The Uplands SRMA includes BLM land both north and south of the UMNWSR downstream from Arrow Creek to the James Kipp Recreation Area.

Fees – The BLM would implement an expanded amenity fee (currently \$6 per night per vehicle at the James Kipp Recreation Area) for overnight camping in developed recreation sites (Level 1). This would include Wood Bottom, Coal Banks, Judith Landing, Lower Woodhawk, the James Kipp Recreation Area and any additional Level 1 sites that may be constructed. After the RMP is completed the BLM, with public input, would develop a business plan to determine the actual fee amounts charged.

Expanded amenity fees collected for camping would be returned to the Lewistown Field Office and used at Level 1 sites for expenditure on site maintenance and visitor service improvements as established in FLREA.

Gateway communities – The BLM would strive to provide a staffed visitor information site in Chinook, Big Sandy and

Winifred or partner with these gateway communities to provide visitor information and benefits such as family education opportunities and educational and interpretive experiences.

The BLM would encourage private sector initiatives as a means of developing river visitor use opportunities. The Monument offers a wide range of visitor opportunities, only some of which can be provided by the BLM. To overcome these limitations, non-governmental entities, either individuals or institutions, could help accomplish initiatives compatible with the Monument. These initiatives would not result in permanent facilities in the Monument.

A wide variety of activities can be generated by private sector initiatives. Services for boats or horses, overnight or extended-stay lodging facilities, food/water and other provision sales and guiding are services traditionally offered in this way. Other opportunities may be created by using the Monument for touring and instructional purposes and for expanded regional promotional activities.

Research, collection and special events – The BLM would authorize archaeological and historical investigations. Prehistoric sites would be evaluated and then monitored, protected or excavated based on their scientific value and what they could add to the body of knowledge and interpretation opportunities. Historic sites would be evaluated and then monitored or maintained based on their historic value, the attraction they have for visitors and their use as safety shelters.

The BLM would allow and authorize paleontological research. All BLM land is closed to commercial collecting of paleontological resources under existing policy and regulation (BLM Manual 8270). Permits are issued to accredited institutions to conduct activity on BLM land to ensure that the resource is used for public display and education purposes only. Scientific use allows for survey/reconnaissance or limited excavation work with a minimum amount of surface disturbance, as long as such work is conducted under a paleontological permit, and maintains the values for which the Monument was established.

The collection of common invertebrate fossils and petrified wood for personal use would be allowed in specific identified areas, as limited by the BLM's regulations (43 CFR 3620 and 8365).

The personal collection of plant material (e.g., vegetation, seeds, and berries) would be allowed in specified areas. Wildcrafting or commercial collection of plant materials would not be allowed without a specific permit.

The use of metal detectors would be allowed by permit only. A permit for metal detector use may be authorized by the Monument manager when determined to be in the

interest of the public and consistent with the goals of the Monument. The use of metal detectors without a permit may be authorized in certain areas. Metal detectors, magnetometers or other remote sensing equipment may also be allowed for administrative purposes or public health and safety uses as determined by the Monument manager.

Special recreation permit applications for activities or events may be granted, if the activity would not impact the resources or values for which the Monument was designated. The BLM may limit the size of a group or specific activities. The authorization of large group events would be analyzed on a case-by-case basis prior to issuing an SRP.

Recreation in sensitive wildlife habitat – The BLM would allow the personal collection of shed antlers (horn hunting) with a seasonal restriction (December 1 to March 31) on the disturbance of shed antlers to protect wildlife during the winter.

There would be no restrictions concerning camping on BLM islands in the Missouri River.

Interpretive sites – Historic, archaeological and geological opportunities on BLM land would be enhanced by developing the interpretive potential at selected sites. The BLM would establish small, low-key interpretive signs at specific sites that blend in with the surroundings and would not be visible from the Missouri River. The BLM would provide portable interpretation (guidebooks) for some cultural sites and install simple markers that key to the guidebooks.

Topics for interpretation would be selected based on access, information potential and the potential to provide important segments of the area's history or prehistory via interpretation. Some potential sites for interpretation would include Decision Point; Eagle Creek; Murray/PN dugout; Hagadone, Middleton, Ervin, Gist, Cable, and Nelson homesteads; Gilmore cabin; Nez Perce Trail; and sites associated with the Lewis and Clark Expedition. Other possible interpretive sites and topics include prehistoric sites and the steamboat era on the Missouri River.

Some potential geological interpretive sites would include the stratigraphic cross section of the Missouri River from Virgelle to the James Kipp Recreation Area showing the regional dip of beds starting in Colorado Shale and ending in Bearpaw Shale; the glacial geomorphology and paleo channel of the Missouri River at Little Sandy Creek; the igneous dike known as the Grand Natural Wall from the Lewis and Clark Journal entry; Hole-in-the-Wall; the Big Sag at Judith Landing; Sugarloaf Rock fault plane vs. bedding plane at Stafford Ferry; the diatreme at Gist Bottom; and the invertebrate paleo site at Woodhawk.

Alternative D

Recreation Management Areas – The Monument would be included in two special recreation management areas: Upper Missouri River SRMA and Uplands SRMA (Map C). The Upper Missouri River SRMA includes BLM land from Fort Benton downstream to Arrow Creek and the entire UMNWSR. The Uplands SRMA includes BLM land both north and south of the UMNWSR downstream from Arrow Creek to the James Kipp Recreation Area.

Fees – The BLM would implement an expanded amenity fee for overnight camping in Level 1 recreation sites. The site would provide at least a majority of the following: tent or trailer spaces, picnic tables, drinking water, access roads, collection by an employee or agent, reasonable visitor protection, refuse containers, toilet facilities and simple devices for containing a fire. Level 1 sites currently include Wood Bottom, Coal Banks Landing, Judith Landing, Lower Woodhawk and the James Kipp Recreation Area. This fee system would also apply to any additional Level 1 site that may be constructed. After the RMP is completed the BLM, with public input, would develop a business plan to determine the actual fee amounts charged.

A Special Recreation Permit would be required to boat on the Missouri River. It would be referred to as a Special Area Permit. The cost of the permit would be established by the State Director based on the cost of operating the permit system, special costs related to management of the area, comparability with other agencies and similar special areas, and fairness and equity among all users. Camping overnight at Level 1 expanded amenity fee sites would be included with the Special Area Permit fee.

Expanded amenity fees collected for camping would be returned to the Lewistown Field Office and used at Level 1 sites for expenditure on site maintenance and visitor services as established in FLREA.

Fees associated with the Special Area Permit to float the Missouri River would be returned to the Lewistown Field Office and used to cover management costs. In addition, fees could be used to support county emergency services and to purchase short-term campsite easements or leases from willing private landowners.

Gateway communities – The BLM would strive to provide a staffed visitor information site in Chinook, Big Sandy and Winifred or partner with these gateway communities to provide visitor information and other visitor benefits such as family education opportunities and educational and interpretive experiences.

The BLM would encourage private sector initiatives as a means of developing river visitor use opportunities. The

Monument offers a wide range of visitor opportunities, only some of which can be provided by the BLM. To overcome these limitations, non-governmental entities, either individuals or institutions, could help accomplish initiatives compatible with the Monument. These initiatives would not result in permanent facilities in the Monument.

A wide variety of activities can be generated by private sector initiatives. Services for boats or horses, overnight or extended-stay lodging facilities, food/water and other provision sales and guiding are services traditionally offered in this way. Other opportunities may be created by using the Monument for touring and instructional purposes and for expanded regional promotional activities.

Research, collection and special events – The BLM would authorize archaeological and historical investigations. Prehistoric sites would be evaluated and then monitored, protected or excavated based on their scientific value and what they could add to the body of knowledge and interpretation opportunities. Historic sites would be evaluated and then monitored or maintained based on their historic value, the attraction they have for visitors and their use as safety shelters.

The BLM would allow and authorize paleontological research. All BLM land is closed to commercial collecting of paleontological resources under existing policy and regulation (BLM Manual 8270). Permits are issued to accredited institutions to conduct activity on BLM land to ensure that the resource is used for public display and education purposes only. Scientific use allows for survey/reconnaissance or limited excavation work with a minimum amount of surface disturbance, as long as such work is conducted under a paleontological permit, and maintains the values for which the Monument was established.

The collection of common invertebrate fossils and petrified wood for personal use would be allowed in specific identified areas, as limited by the regulations (43 CFR 3620 and 8365).

The personal collection of plant material (e.g., vegetation, seeds and berries) would be allowed in specified areas. Wildcrafting or commercial collection of plant materials would not be allowed without a specific permit.

The use of metal detectors would be allowed by permit only. A permit for metal detector use may be authorized by the Monument manager when determined to be in the interest of the public and consistent with the goals of the Monument. The use of metal detectors without a permit may be authorized in certain areas. Metal detectors, magnetometers or other remote sensing equipment may also be allowed for administrative purposes or public health and safety uses as determined by the Monument manager.

Special recreation permit applications for activities or events may be granted, if the activity would not impact the resources or values for which the Monument was designated. The BLM may limit the size of a group or specific activities. The authorization of large group events would be analyzed on a case-by-case basis prior to issuing an SRP.

Recreation in sensitive wildlife habitat – The BLM would allow the personal collection of shed antlers (horn hunting). However, the BLM could implement a seasonal restriction (December 1 to May 15) on the disturbance of shed antlers to protect wildlife during the winter, if harassment is a problem.

Camping would not be allowed on BLM islands from April 1 to July 31, to protect wildlife during sensitive periods (e.g., nesting, brooding periods).

Interpretive sites – Historic, archaeological and geological opportunities on BLM land would be enhanced by developing the interpretive potential at selected sites. The BLM would establish small, low-key interpretive signs at specific sites that blend in with the surroundings and would not be visible from the Missouri River. These low-key sites would be for dispersed recreation experiences. The BLM would provide portable interpretation (guidebooks) for some cultural sites and install simple markers that key to the guidebooks.

Topics for interpretation would be selected based on access, information potential and the potential to provide important segments of the area's history or prehistory via interpretation. Some potential cultural sites for interpretation would include Decision Point; Eagle Creek; Murray/PN dugout; Hagadone, Middleton, Ervin, Gist, Cable, and Nelson homesteads; Gilmore cabin; Nez Perce Trail; and sites associated with the Lewis and Clark Expedition. Other possible interpretive sites and topics include prehistoric sites and the steamboat era on the Missouri River.

Some potential geological interpretive sites would include the stratigraphic cross section of the Missouri River from Virgelle to the James Kipp Recreation Area showing the regional dip of beds starting in Colorado Shale and ending in Bearpaw Shale; the glacial geomorphology and paleo channel of the Missouri River at Little Sandy Creek; the igneous dike known as the Grand Natural Wall from the Lewis and Clark Journal entry; Hole-in-the-Wall; the Big Sag at Judith Landing; the Sugarloaf Rock fault plane vs. bedding plane at Stafford Ferry; the diatrema at Gist Bottom; and the invertebrate paleo site at Woodhawk.

Alternative E

Recreation Management Areas – The Monument would be included in two special recreation management areas: Upper Missouri River SRMA and Uplands SRMA (Map

C). The Upper Missouri River SRMA includes BLM land from Fort Benton downstream to Arrow Creek and the entire UMNWSR. The Uplands SRMA includes BLM land both north and south of the UMNWSR downstream from Arrow Creek to the James Kipp Recreation Area.

Fees – The BLM would implement an expanded amenity fee for overnight camping in Level 1 recreation sites. The site would provide at least a majority of the following: tent or trailer spaces, picnic tables, drinking water, access roads, collection by an employee or agent, reasonable visitor protection, refuse containers, toilet facilities and simple devices for containing a fire. Level 1 sites currently include Wood Bottom, Coal Banks Landing, Judith Landing, Lower Woodhawk, and the James Kipp Recreation Area. This fee system would also apply to any additional Level 1 site that may be constructed. After the RMP is completed the BLM, with public input, would develop a business plan to determine the actual fee amounts charged.

A Special Recreation Permit would be required to boat on the Missouri River. It would be referred to as a Special Area Permit. The cost of the permit would be established by the State Director based on the cost of operating the permit system, special costs related to management of the area, comparability with other agencies and similar special areas, and fairness and equity among all users. Camping overnight at Level 1 expanded amenity fee sites would be included with the Special Area Permit fee.

Expanded amenity fees collected for camping would be returned to the Lewistown Field Office and used at Level 1 sites for expenditure on site maintenance and visitor services as established in FLREA.

Fees associated with the Special Area Permit to float the Missouri River would be returned to the Lewistown Field Office and used to cover management costs. In addition, fees could be used to support county emergency services and to purchase short-term campsite easements or leases from willing private landowners.

Gateway communities – The BLM would provide visitor information to local communities to enhance their capability to provide benefits such as family education opportunities and educational and interpretive experiences.

Research, collection and special events – The BLM would not allow or authorize archaeological and historical investigations (except 106 permits) or paleontological research.

The personal collection of common invertebrate fossils and petrified wood would be prohibited.

The personal collection of plant material (e.g., vegetation, seeds, and berries) would be prohibited.

The use of metal detectors would be prohibited.

The BLM would not authorize large group activities or events in the Monument.

Recreation in sensitive wildlife habitat – The BLM would not allow the personal collection of shed antlers (horn hunting) in the Monument.

Camping would not be allowed on BLM islands in the Missouri River.

Interpretive sites – The BLM would not provide site interpretation, but would encourage search and discover experiences.

Alternative F (Preferred Alternative)

Recreation Management Areas – The Monument would be included in two special recreation management areas: Upper Missouri River SRMA and Uplands SRMA (Map C). The Upper Missouri River SRMA includes BLM land from Fort Benton downstream to Arrow Creek and the entire UMNWSR. The Uplands SRMA includes BLM land both north and south of the UMNWSR downstream from Arrow Creek to the James Kipp Recreation Area.

Fees – The BLM would implement an expanded amenity fee for overnight camping in Level 1 recreation sites. The site would provide at least a majority of the following: tent or trailer spaces, picnic tables, drinking water, access roads, collection by an employee or agent, reasonable visitor protection, refuse containers, toilet facilities and simple devices for containing a fire. Level 1 sites currently include Wood Bottom, Coal Banks Landing, Judith Landing, Lower Woodhawk and the James Kipp Recreation Area. This fee system would also apply to any additional Level 1 site that may be constructed. In addition, the BLM may charge fees for use of some existing structures in the Monument, including cabins and corrals, consistent with FLREA. After the RMP is completed the BLM, with public input, would develop a business plan to determine the actual fee amounts charged.

A Special Recreation Permit would be required to boat on the Missouri River. It would be referred to as a Special Area Permit. The cost of the permit would be established by the State Director based on the cost of operating the permit system, special costs related to management of the area, comparability with other agencies and similar special areas, and fairness and equity among all users. Camping overnight at Level 1 expanded amenity fee sites would be included with the Special Area Permit fee.

Expanded amenity fees collected for camping would be returned to the Lewistown Field Office and used at Level 1 sites for expenditure on site maintenance and visitor ser-

vices as established in FLREA.

Fees associated with the Special Area Permit to float the Missouri River would be returned to the Lewistown Field Office and used to cover management costs. In addition, fees could be used to support county emergency services and to purchase short-term campsite easements or leases from willing private landowners.

Gateway communities—The BLM would strive to encourage and sustain collaborative partnerships, volunteers and citizen-centered public service. The BLM would provide a staffed visitor information site in Chinook, Big Sandy and Winifred or partner with these gateway communities to provide visitor information.

The BLM would encourage private sector initiatives as a means of developing river visitor use opportunities. The Monument offers a wide range of visitor opportunities, only some of which can be provided by the BLM. To overcome these limitations, non-governmental entities, either individuals or institutions, could help accomplish initiatives compatible with the Monument. These initiatives would not result in permanent facilities in the Monument.

A wide variety of activities can be generated by private sector initiatives. Services for boats or horses, overnight or extended-stay lodging facilities, food/water and other provision sales and guiding are services traditionally offered in this way. Other opportunities may be created by using the Monument for touring and instructional purposes and for expanded regional promotional activities.

Research, collection and special events – The BLM would authorize archaeological and historical investigations. Prehistoric sites would be evaluated and then monitored, protected or excavated based on their scientific value and what they can add to knowledge and interpretation of the Monument. Historic sites would be evaluated and then monitored or maintained based on their historic value, the attraction they have for visitors and their use as safety shelters.

The BLM would allow and authorize paleontological research. All BLM land is closed to commercial collecting of paleontological resources under existing policy and regulation (BLM Manual 8270). Permits are issued to accredited institutions to conduct activity on BLM land to ensure that the resource is used for public display and education purposes only. Scientific use allows for survey/reconnaissance or limited excavation work with a minimum amount of surface disturbance, as long as such work is conducted under a paleontological permit and maintains the values for which the Monument was established.

The collection of common invertebrate fossils and petrified wood for personal use would be allowed in specific identi-

fied areas within the Monument, as limited by the regulations (43 CFR 3620 and 8365).

The personal collection of plant material (e.g., vegetation, seeds and berries) would be allowed. Wildcrafting or commercial collection of plant materials would not be allowed without a specific permit.

The use of metal detectors would be allowed by permit only. A permit for metal detector use may be authorized by the Monument manager when determined to be in the interest of the public and consistent with the goals of the Monument. Metal detectors, magnetometers or other remote sensing equipment may also be allowed for administrative purposes or public health and safety uses as determined by the Monument manager.

Special recreation permit applications for activities or events may be granted, if the activity would not impact the resources or values for which the Monument was designated. Large group events would be authorized subject to restrictions to protect resources. These restrictions may include, but would not be limited to, the designation of specific roads or trails for a particular event, limitations on parking, use of campfires, sanitation requirements and the number of people involved in the event.

Recreation in sensitive wildlife habitat – The BLM would allow the personal collection of shed antlers (horn hunting). However, the BLM could implement a seasonal restriction (December 1 to March 31) on the disturbance of shed antlers to protect wildlife during the winter, if harassment is a problem.

Camping would not be allowed on BLM islands from April 1 to July 31, to protect wildlife during sensitive periods (e.g., nesting, brooding periods).

Interpretive sites – Historic, archaeological, and geological opportunities on BLM land would be enhanced by developing the interpretive potential at selected sites (Map 1). Small, low-key interpretive signs that blend in with the surroundings (and not visible from the Missouri River) would be established at specific sites. These low-key sites would be for dispersed recreation opportunities. Simple markers would be provided for some cultural sites. Portable interpretation (guidebooks and brochures) would be available.

Topics for interpretation would be selected based on setting, visitor benefits and the potential to provide the area's history or prehistory via interpretation. Some potential cultural sites for interpretation would include Decision Point; Eagle Creek; the Murray/PN dugout; Hagadone, Middleton, Ervin, Gist, Cable, and Nelson homesteads, Gilmore cabin; Nez Perce Trail; and sites associated with the Lewis and Clark Expedition. Other possible interpre-

tive sites and topics could include prehistoric sites and the steamboat era on the Missouri River.

Some potential geological interpretive sites would include the stratigraphic cross section of the Missouri River from Virgelle to the James Kipp Recreation Area showing the regional dip of beds starting in Colorado Shale and ending in Bearpaw Shale; the glacial geomorphology and paleo channel of the Missouri River at Little Sandy Creek; the igneous dike known as the Grand Natural Wall from the Lewis and Clark Journal entry; Hole-in-the-Wall; the Big Sag at Judith Landing; the Sugarloaf Rock fault plane vs. bedding plane at Stafford Ferry; the diatreme at Gist Bottom; and the invertebrate paleo site at Woodhawk.

Upper Missouri River Special Recreation Management Area (SRMA)

The BLM's goal is to manage these lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes. This goal would allow BLM to provide for dispersed and developed recreation opportunities and ensure visual quality characteristics reflect a predominantly primitive or natural landscape while providing for a diversity of visitor experiences.

This section addresses specific management for the Upper Missouri River SRMA, which primarily includes management for the UMNWSR.

Alternative A (Current Management)

Special recreation use permits – There would be a limit of 23 SRPs and a one-trip-per-season permit for non-permit-

ted commercial users. An SRP, with a fee, would be required for commercial recreational use on the Missouri River and related land in the UMNWSR (43 CFR 2930) to prevent damage to BLM land or water resource values and to prevent social conflicts. A free use permit would be required for non-profit organized groups.

Opportunities for boaters – The BLM would re-determine user capacity based on the Limits of Acceptable Change criteria (West HiLine RMP, Appendix 22.10). This process would, with public participation, identify how much environmental change would be acceptable. The character and rate of change due to human factors would be kept within acceptable levels. Parameters to be considered during the review process would include, but not be limited to, vegetation change; the amount of bare ground near a campsite; bank-side trails; sanitation problems; litter; and available firewood.

The BLM would require a special recreation permit for groups larger than 50 people boating the Missouri River. This would be a free use permit.

Camping facilities – The existing camping facilities would remain at the current campsites along the Missouri River. Dispersed camping (Level 4 opportunities) would be allowed on all BLM land.

BLM land currently provides varying levels of camping facilities and recreational opportunities. See “River Recreation Facilities.”

The BLM would continue maintaining undeveloped sites by clearing brush (maximum 1/4 acre) for campsite location, enforcing a pack-in/pack-out policy and removing trash as necessary. All undeveloped sites in the scenic and recreation segments of the UMNWSR would be signed and shown on user maps.

River Recreation Facilities

Level 1 – Developed public access sites. These sites are accessible by road with a full range of developments that could include parking lots, boat ramps, vault toilets, campsites for tents and RVs and picnic facilities. These sites include the Chouteau County Fairgrounds Campground and Canoe Launch, Decision Point Interpretive Trail, Wood Bottom, Coal Banks Landing, Judith Landing, Lower Woodhawk and the James Kipp Recreation Area.

Level 2 – Developed boat camps. These sites are accessible to the public only by boat. The sites could include vault toilets, metal fire rings and occasionally open-air shelters. They include Little Sandy, Eagle Creek, Hole-in-the-Wall and Slaughter River. BLM has administrative road access to these sites.

Level 3 – Primitive boat camps. These sites are accessible only by boat and could contain a metal fire ring. There are no other developments. These sites include Evans Bend, Senieurs Reach, Black Bluff Rapids, Dark Butte, Pablo Rapids, The Wall, McGarry Bar, Gist Bottom, Cow Island, Upper and Middle Woodhawk and Hideaway.

Level 4 – Dispersed camping opportunities. In addition to the developed sites described above, camping is permissible on any of the 90,000 acres of BLM land adjacent to the river. The absence of development allows opportunities for those seeking a completely primitive experience.

Undeveloped sites may be improved to developed sites in scenic and recreation segments of the UMNWSR, if one or more of the following criteria are met:

- Public use of the river or the existing undeveloped sites increases;
- Impacts to soil and vegetation become damaging (heavy use that compacts soils/kills vegetation);
- Sanitation becomes a problem;
- Additional sites are needed to rest existing campsites;
- Better distribution of public use sites is needed.

The BLM would maintain all developed sites. New sites would be established if one or more of the above criteria are met. New capital improvements would be allowed if impacts to cultural and natural resources could be mitigated to an acceptable level. Improvements in the wild section of the UMNWSR would be allowed if the sites can be serviced by existing roads or by river. All improvements would comply with the Wild and Scenic Rivers Act, as amended.

Developed sites in recreational sections would be established and managed based on demand and economic feasibility.

The BLM would maintain the 14-night limit for camping.

Camp stoves, fire pans, or fire mats would not be required for dispersed camping (Level 4 opportunities).

Level 1 sites would continue offering a full range of signs including kiosks, interpretive signs, traffic signs and other signs as necessary to provide information and facilitate the safe use of campgrounds. International signs would continue being used to mark Level 2 and 3 campsites and some signs and notices would be posted in vault toilets at Level 2 sites.

Motorized watercraft – The BLM would continue the seasonal boating restrictions (Memorial Day to Labor Day) on the wild and scenic segments of the UMNWSR (89 miles). The recreation segments would remain open to motorized watercraft yearlong (60 miles). Table 2.14 shows the motorized watercraft restrictions by river segment.

There would be no restrictions for the administrative use of motorized watercraft on the Missouri River.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Alternative B

Special recreation use permits – An SRP, with a fee, would be required for commercial recreational use on the

Missouri River and related land in the UMNWSR. There would be no limit on the number of SRPs.

Opportunities for boaters – The BLM would not develop an allocation system and there would be no limit or restriction on the number of boaters.

The BLM would not require a special recreation permit for large groups boating the Missouri River. There would be no launch restrictions for groups.

Camping facilities – The BLM would provide additional Level 1, 2 and 3 recreation sites, as needed, to address increasing use demands or to resolve visitor use issues (such as constructing a launch/take out facility at Stafford Ferry or building a boat ramp in the vicinity of Coal Banks Landing).

The BLM would work to establish agreements with willing private landowners to develop alternative campsites on their private property.

The BLM would maintain the 14-night limit for camping.

Camp stoves, fire pans, or fire mats would not be required for dispersed camping (Level 4 opportunities).

Appropriate signing could be used, as necessary, at any level of facility development (Levels 1, 2, 3 and 4) or on other BLM lands located within the UMNWSR. Such signing would not necessarily be associated with a developed site.

Motorized watercraft – The BLM would revise the current seasonal boating restrictions and the Missouri River would be open to motorized watercraft yearlong (149 miles). Table 2.15 shows the motorized watercraft restrictions by river segment.

There would be no restrictions for the administrative use of motorized watercraft on the Missouri River.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Alternative C

Special recreation use permits – There would be a limit of 30 SRPs for commercial users and a one-trip-per-season permit for non-permitted commercial users. An SRP, with a fee, would be required for commercial recreational use on the Missouri River and related land in the UMNWSR (43 CFR 2930) to prevent damage to BLM land or water resource values and to prevent social conflicts.

Table 2.14
Use of Motorized Watercraft on the Upper Missouri River
Alternative A (Current Management)

<i>River Segment</i>	<i>Motorized Use</i>
River Mile 0 to 52 Fort Benton – Pilot Rock (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would be allowed yearlong.
River Mile 52 to 84.5 Pilot Rock – Deadman Rapids (Wild and Scenic Segment)	Motorized watercraft travel downstream at a no-wake speed would be allowed from the Saturday before Memorial Day through the Sunday after Labor Day. Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from the Monday after Labor Day to the Friday before Memorial Day. The operation of personal watercraft and landing of floatplanes would be allowed only from the Monday after Labor Day to the Friday before Memorial Day.
River Mile 84.5 to 92.5 Deadman Rapids to Holmes Council Island (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would be allowed yearlong.
River Mile 92.5 to 149 Holmes Council Island to Fred Robinson Bridge (Wild and Scenic Segment)	Motorized watercraft travel downstream at a no-wake speed would be allowed from the Saturday before Memorial Day through the Sunday after Labor Day. Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from the Monday after Labor Day to the Friday before Memorial Day. The operation of personal watercraft and landing of floatplanes would be allowed only from the Monday after Labor Day to the Friday before Memorial Day.

Opportunities for boaters – The BLM would monitor standards and indicators to manage visitor use of and impacts to resources (Appendix J). Once those standards and/or indicators are reached or exceeded, the BLM would take the necessary action to reduce impacts to resources without limiting the number of people boating the Missouri River. Management actions are discussed in Appendix J and include, but would not be limited to, a mandatory registration system, camping at designated sites, limiting the number of days camping at designated sites, resting and/or rotating campsites, and closing campsites.

From June 15 to August 1, the BLM would require groups larger than 20 people to launch at Coal Banks or Judith

Landing on Wednesday, Thursday or Friday. Groups of less than 20 people could launch from any site, any day.

Camping facilities – Additional Level 1 sites would be constructed only in the recreation segments of the UMNWSR. Improvements to existing Level 1 and 2 sites could occur to improve infrastructure or address visitor use issues. New Level 2 facilities could be constructed between Fort Benton and Judith Landing, but only as necessary to improve resource conditions, improve visitor distribution or resolve visitor use conflicts. Associated facilities and construction could not detract from the visual character and integrity of the UMNWSR. Additional Level 3 campsites could be added as needed to accommodate increases in use.

Table 2.15
Use of Motorized Watercraft on the Upper Missouri River
Alternative B

<i>River Segment</i>	<i>Motorized Use</i>
River Mile 0 to 52 Fort Benton – Pilot Rock (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would be allowed yearlong.
River Mile 52 to 84.5 Pilot Rock – Deadman Rapids (Wild and Scenic Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would be allowed yearlong.
River Mile 84.5 to 92.5 Deadman Rapids to Holmes Council Island (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would be allowed yearlong.
River Mile 92.5 to 149 Holmes Council Island to Fred Robinson Bridge (Wild and Scenic Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would be allowed yearlong.

Dispersed camping (Level 4 opportunities) would be allowed on all BLM land.

During the core use period on the river, June 15 to August 1, the BLM would implement a 2-night limit at Level 2 campsites. The BLM would maintain the 14-night limit at Level 1, 3 and 4 sites.

The BLM would implement a Leave No Trace program and require the use of camp stoves, fire pans or fire mats for dispersed camping (Level 4 opportunities).

Signing in Level 1 sites could be used to safely direct traffic, provide information or provide interpretive messages. Signing should be commensurate with visual surroundings and the level of development. Signing located along the Missouri River would identify campsites and would be of minimum size and only used at Level 1, 2 and 3 campsites. Signing within campsites and elsewhere within the UMNWSR would be limited to existing infrastructure and of sufficiently low profile to not be visible from the river.

Motorized watercraft – The BLM would revise the current boating restrictions and the wild and scenic segments of the UMNWSR would have a seasonal restriction from June 15 to September 15 (89 miles); however, personal

watercraft and floatplanes would not be allowed yearlong. The recreation segments would be open to most types of motorized watercraft yearlong; however, personal watercraft and floatplanes would only be allowed on river miles 0 to 3 (Fort Benton area) and floatplanes would be allowed from September 16 to June 4 on river miles 84.5 to 92.5 (Deadman Rapids to Holmes Council Island). Table 2.16 shows the motorized watercraft restrictions by river segment.

During the seasonal restrictions in the wild and scenic segments of the UMNWSR, the BLM would designate specific days (selected to avoid peak visitor use days) when agencies could use upstream travel. The BLM would pursue administrative use agreements with other agencies, encouraging them to also abide by these guidelines for motorized use.

Livestock grazing permittees would be allowed upstream travel to administer their grazing permit with prior notification to the BLM. The BLM would authorize the travel verbally for unplanned situations or by a letter to the permittee for activities requested in advance.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Table 2.16
Use of Motorized Watercraft on the Upper Missouri River
Alternative C

<i>River Segment</i>	<i>Motorized Use</i>
River Mile 0 to 52 Fort Benton – Pilot Rock (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft and landing of floatplanes would only be allowed on river miles 0 to 3 yearlong.
River Mile 52 to 84.5 Pilot Rock – Deadman Rapids (Wild and Scenic Segment)	Motorized watercraft travel downstream at a no-wake speed would be allowed from June 15 to September 15. Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from September 16 to June 14. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.
River Mile 84.5 to 92.5 Deadman Rapids to Holmes Council Island (Recreation Segment)	Motorized watercraft travel both upstream and downstream would be allowed yearlong. The operation of personal watercraft would not be allowed yearlong. The landing of floatplanes would be allowed only from September 16 to June 4.
River Mile 92.5 to 149 Holmes Council Island to Fred Robinson Bridge (Wild and Scenic Segment)	Motorized watercraft travel downstream at a no-wake speed would be allowed from June 15 to September 15. Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from September 16 to June 14. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.

Alternative D

Special recreation use permits – There would be a limit of 30 SRPs for commercial users and a one-trip-per-season permit for non-permitted commercial users. An SRP, with a fee, would be required for commercial recreational use on the Missouri River and related land in the UMNWSR (43 CFR 2930) to prevent damage to BLM land or water resource values and to prevent social conflicts.

Opportunities for boaters – The BLM would monitor standards and indicators to manage visitor use and impacts to resources (Appendix J). Once those standards and/or indicators are reached or exceeded, the BLM would first take the necessary actions to reduce impacts to resources without limiting the number of people boating the Missouri River and then, if necessary, develop and implement an

allocation system. Management actions are discussed in Appendix J and include, but would not be limited to, a seasonal allocation system, or a temporary emergency allocation system in the White Cliffs area, a mandatory registration with stipulations pertaining to camping on BLM land, resting and/or rotating campsites, and closing campsites.

The BLM would require a special recreation permit for groups larger than 30 people boating the Missouri River. The processing of SRP applications would follow administrative cost recovery procedures (43 CFR 2930).

Camping facilities – To provide dispersed recreation opportunities and benefits, no additional Level 1 facilities would be constructed. Improvements to existing Level 1 and 2 sites could occur to improve infrastructure or address

visitor use issues. Additional Level 2 campsites would be constructed only in the recreation segments of the UMNWSR. Additional Level 3 sites could be added, as needed, to accommodate increases in use. However, in the wild and scenic segments of the UMNWSR at least 60% of campsites would be Level 4 opportunities.

The BLM would work to establish agreements with willing private landowners to develop alternative campsites on their private property.

During the core use period on the Missouri River, June 15 to August 1, the BLM would implement a 2-night limit at Level 2 campsites. The BLM would maintain the 14-night limit at Level 1, 3 and dispersed camping sites (Level 4 opportunities).

The BLM would implement a Leave No Trace program and require the use of camp stoves, fire pans, or fire mats for dispersed camping (Level 4 opportunities).

Signing would be limited to Level 1 sites, commensurate with visual surroundings and level of development. Signing could be used as necessary at Level 2 sites, but only within new or existing infrastructure. No other signing would be used within the UMNWSR.

Motorized watercraft – The BLM would revise the current boating restrictions on the UMNWSR as shown in Table 2.17.

The recreation segments of the UMNWSR would be open to motorized watercraft yearlong, except personal watercraft would not be allowed from June 15 to September 15. However, floatplanes would only be allowed on river miles 0 to 3 near Fort Benton.

The wild and scenic segment from Pilot Rock to Deadman Rapids would have a seasonal restriction from May 1 to December 1 with downstream travel only at a no-wake speed. Personal watercraft and floatplanes would not be allowed on this segment of the river yearlong.

The wild and scenic segment from Holmes Council Island to Fred Robinson Bridge would have a seasonal restriction from June 5 to September 15, when no motorized watercraft would be allowed. From September 16 to December 1, motorized watercraft would be allowed for downstream travel only at a no-wake speed. Personal watercraft and floatplanes would not be allowed on this segment of the river yearlong.

The BLM (and those with special use authorizations) would abide by the seasonal no-wake downstream travel restrictions and would pursue administrative use agreements with other agencies, encouraging them to also abide by these guidelines for motorized use.

Livestock grazing permittees would be allowed upstream travel to administer their grazing permit with prior notification to the BLM. The BLM would authorize the travel verbally for unplanned situations or by a letter to the permittee for activities requested in advance.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Alternative E

Special recreation use permits – Based on a use allocation system (developed after the RMP is completed) the number of user days would be limited for commercial users. However, there would be no limit on the number of commercial SRPs. A Special Recreation Permit, with a fee, would be required for commercial recreational use on the Missouri River and related land in the UMNWSR (43 CFR 2930) to prevent damage to BLM land or water resource values and to prevent social conflicts.

Opportunities for boaters – The BLM would develop and implement an allocation system after completion of the Monument RMP. The development of an allocation system would include public participation.

The BLM would require a special recreation permit for groups larger than 16 people boating the Missouri River. The processing of SRP applications would follow administrative cost recovery procedures.

Camping facilities – The BLM would maintain the current number and location of recreation facilities and campsites within the UMNWSR. Additional campsites would not be developed.

The BLM would work to establish agreements with willing private landowners to develop alternative campsites on private property.

During the core use period on the Missouri River, June 15 to August 1, the BLM would implement a 2-night limit at Level 2 and 3 campsites and maintain the 14-night limit at Level 1 and dispersed camping sites (Level 4 opportunities).

The BLM would implement a Leave No Trace program and require the use of camp stoves, fire pans or fire mats for dispersed camping (Level 4 opportunities).

Signing would be limited to Level 1 sites and would be commensurate with the visual surroundings and level of development. No other signing would be used within the UMNWSR.

Table 2.17
Use of Motorized Watercraft on the Upper Missouri River
Alternative D

<i>River Segment</i>	<i>Motorized Use</i>
River Mile 0 to 52 Fort Benton – Pilot Rock (Recreation Segment)	<p>Motorized watercraft travel both upstream and downstream would be allowed yearlong.</p> <p>The operation of personal watercraft would be allowed only from September 16 to June 14.</p> <p>The landing of floatplanes would be allowed only on river miles 0 to 3 yearlong.</p>
River Mile 52 to 84.5 Pilot Rock – Deadman Rapids (Wild and Scenic Segment)	<p>Motorized watercraft travel downstream at a no-wake speed would be allowed from May 1 to November 30.</p> <p>Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from December 1 to April 30.</p> <p>The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.</p>
River Mile 84.5 to 92.5 Deadman Rapids to Holmes Council Island (Recreation Segment)	<p>Motorized watercraft travel both upstream and downstream would be allowed yearlong.</p> <p>The operation of personal watercraft would be allowed only from September 16 to June 14.</p> <p>The landing of floatplanes would not be allowed yearlong.</p>
River Mile 92.5 to 149 Holmes Council Island to Fred Robinson Bridge (Wild and Scenic Segment)	<p>Motorized watercraft travel would not be allowed from June 15 to September 15.</p> <p>Motorized watercraft travel downstream at a no-wake speed would be allowed from September 16 to November 30.</p> <p>Motorized watercraft travel both upstream and downstream would be allowed from December 1 to June 14.</p> <p>The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.</p>

Motorized watercraft – The BLM would revise the current seasonal boating restrictions on the UMNWSR as shown in Table 2.18. Motorized watercraft would not be allowed on any segment of the UMNWSR.

Agency motorized watercraft (and those with special use authorizations) would abide by the same seasonal restrictions as the public. The BLM would pursue administrative use agreements with other agencies, encouraging them to also abide by these guidelines for motorized use.

Livestock grazing permittees would be allowed upstream travel to administer their grazing permit with prior notification to the BLM. The BLM would authorize the travel verbally for unplanned situations or by a letter to the permittee for activities requested in advance.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Table 2.18
Use of Motorized Watercraft on the Upper Missouri River
Alternative E

<i>River Segment</i>	<i>Motorized Use</i>
River Mile 0 to 52 Fort Benton – Pilot Rock (Recreation Segment)	Motorized watercraft would not be allowed yearlong. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.
River Mile 52 to 84.5 Pilot Rock – Deadman Rapids (Wild and Scenic Segment)	Motorized watercraft would not be allowed yearlong. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.
River Mile 84.5 to 92.5 Deadman Rapids to Holmes Council Island (Recreation Segment)	Motorized watercraft would not be allowed yearlong. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.
River Mile 92.5 to 149 Holmes Council Island to Fred Robinson Bridge (Wild and Scenic Segment)	Motorized watercraft would not be allowed yearlong. The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.

Alternative F (Preferred Alternative)

Special recreation use permits – There would be a limit of 23 SRPs and a one-trip-per-season permit for non-permitted commercial users. An SRP, with a fee, would be required for commercial recreational use on the Missouri River and related land in the UMNWSR (43 CFR 2930) to prevent damage to BLM land or water resource values and to prevent social conflicts.

Opportunities for boaters – The BLM would monitor standards and indicators to manage visitor use of and impacts to resources (Appendix J). Once those standards and/or indicators are reached or exceeded, the BLM would take the necessary action to reduce impacts to resources without limiting the number of people boating the Missouri River. Management actions are discussed in Appendix J and include, but would not be limited to, a mandatory registration system, camping at designated sites, limiting the number of days camping at designated sites, resting and/or rotating campsites, and closing campsites.

From June 15 to August 1, the BLM would require groups larger than 20 people to launch at Coal Banks or Judith Landing on Wednesday, Thursday or Friday. Groups of less than 20 people could launch from any site, any day. Groups larger than 30 people would require a special recreation permit, year round, for boating the Missouri River.

Camping facilities – The existing camping facilities would remain at the current campsites along the Missouri River (Map 1). To provide dispersed recreation opportunities and benefits, additional Level 1 sites would be constructed only in the recreation segments of the UMNWSR. Improvements to existing Level 1 and 2 sites could occur to improve infrastructure or address visitor use issues. Additional Level 2 sites could be constructed between Fort Benton and Judith Landing as necessary to improve resource conditions, improve distribution of visitor use or resolve visitor use conflicts. Associated facilities and construction could not detract from the visual character and integrity of the UMNWSR. Additional Level 3 campsites could be added as needed to accommodate increases in use. Dispersed camping (Level 4 opportunities) would be allowed on all BLM land.

The BLM would maintain all developed sites. New capital improvements would be allowed if impacts to cultural and natural resources could be mitigated to an acceptable level. All improvements would comply with the Wild and Scenic Rivers Act, as amended.

The BLM would seek to purchase short-term (1-5 year) campsite easements or leases from willing private landowners for alternative or additional campsites to provide dispersed camping opportunities and benefits.

The BLM would implement a 2-night limit at Level 2

campsites from June 15 to August 1. The BLM would maintain the 14-night limit at Level 1 and 3 sites and for dispersed camping (Level 4 opportunities).

The BLM would implement a Leave No Trace program and require the use of camp stoves, fire pans or fire mats for dispersed camping (Level 4 opportunities).

Signing in Level 1 sites could be used to safely direct traffic, provide information, or provide interpretive messages. Signing should be commensurate with visual surroundings and level of development. Signing located along the Missouri River would identify campsites and would be of minimum size and only used at Level 1, 2 and 3 campsites. Signing within campsites and elsewhere within the UMNWSR would be limited to existing infrastructure and of sufficiently low profile to not be visible from the river.

Motorized watercraft – The BLM would revise the current seasonal boating restrictions on the Missouri River as shown in Table 2.19 and displayed on Map 1. The recreation segments of the UMNWSR would be open to motorized watercraft year round except personal watercraft and floatplanes would only be allowed on river miles 0 to 3 near Fort Benton.

The wild and scenic segment from Pilot Rock to Deadman Rapids would have a seasonal restriction from June 5 to September 15 with downstream travel only at a no-wake speed. Personal watercraft and floatplanes would not be allowed on this segment of the river yearlong.

The wild and scenic segment from Holmes Council Island to Fred Robinson Bridge would have a seasonal restriction from June 5 to September 15, where no motorized watercraft would be allowed. Personal watercraft and floatplanes would not be allowed on this segment of the river yearlong.

<div> <div>Table 2.19</div> <div>Use of Motorized Watercraft on the Upper Missouri River</div> <div>Alternative F (Preferred Alternative)</div> </div>	
<i>River Segment</i>	<i>Motorized Use</i>
<div> <div>River Mile 0 to 52</div> <div>Fort Benton – Pilot Rock</div> <div>(Recreation Segment)</div> </div>	<div> <div>Motorized watercraft travel both upstream and downstream would be allowed yearlong.</div> <div>The operation of personal watercraft and landing of floatplanes would only be allowed on river miles 1 to 3 yearlong.</div> </div>
<div> <div>River Mile 52 to 84.5</div> <div>Pilot Rock – Deadman Rapids</div> <div>(Wild and Scenic Segment)</div> </div>	<div> <div>Motorized watercraft travel downstream at a no-wake speed would be allowed from June 5 to September 15.</div> <div>Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from September 16 to June 4.</div> <div>The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.</div> </div>
<div> <div>River Mile 84.5 to 92.5</div> <div>Deadman Rapids to</div> <div>Holmes Council Island</div> <div>(Recreation Segment)</div> </div>	<div> <div>Motorized watercraft travel both upstream and downstream would be allowed yearlong.</div> <div>The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.</div> </div>
<div> <div>River Mile 92.5 to 149</div> <div>Holmes Council Island to</div> <div>Fred Robinson Bridge</div> <div>(Wild and Scenic Segment)</div> </div>	<div> <div>Motorized watercraft travel would not be allowed from June 5 to September 15.</div> <div>Motorized watercraft travel both upstream and downstream would be allowed the remainder of the year, from September 16 to June 4.</div> <div>The operation of personal watercraft and landing of floatplanes would not be allowed yearlong.</div> </div>

A cooperative effort among agencies operating on the river would be initiated. A Memorandum of Understanding would be developed with the goal of achieving uniform standard operating procedures designed to minimize impacts to boaters from administrative use of motorized watercraft.

Livestock grazing permittees would be allowed upstream travel to administer their grazing permit with prior notification to the BLM. The BLM would authorize the travel verbally for unplanned situations or by a letter to the permittee for activities requested in advance.

There would be no restrictions for any military, fire, search and rescue, or law enforcement watercraft used for emergency purposes.

Uplands Special Recreation Management Area (SRMA)

The BLM's goal is to manage these lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes. This goal would allow BLM to provide for dispersed and developed recreation opportunities and ensure visual quality characteristics reflect a predominantly primitive or natural landscape while providing for a diversity of visitor experiences.

This section addresses specific management for the Uplands SRMA, which primarily includes management for the BLM land outside of the UMNWSR.

Alternative A (Current Management)

Special recreation use permits – The BLM would continue to issue SRPs for commercial hunting with no limit on the number issued (43 CFR 2930). The BLM would not allocate permits or specific use areas for outfitters and guides. All BLM land would be available at the discretion of the Monument manager as long as permittees maintain a special use permit and meet the BLM requirements. However, each permit would be assigned to a specific geographic area (requested or assigned hunting area). Outfitters and other recreational users would continue to be required to use weed-free feed on BLM land for their livestock as a part of the integrated weed management program.

The BLM would issue special recreation use permits for commercial motorized tours. Motorized tours would be allowed on all roads designated open.

Upland Recreation Facilities

Level 1 – Developed public access sites. Recreation sites where a high level of infrastructure development could include campsites, parking lots, vault toilets, interpretive signs, campground host facilities, tree plantings, picnic tables, waste facilities and other infrastructure improvements that accommodate the transition from highway to collector roads. Sites would be marked on a map. An example of a Level 1 site is James Kipp Recreation Area on the river.

Level 2 – Developed upland sites. Campsites, trailheads, scenic overlooks and reservoirs where moderate levels of infrastructure development could include metal fire rings, vault toilets, and improved gravel parking areas. Interpretive signs and information boards may be present but would be much less obtrusive than at Level 1 sites and would blend well with natural surroundings. Sites would be marked on a map. Examples of Level 2 sites are FR Reservoir, Butch Reservoir, Spencer Road Overlook, Gazob Reservoir, Gilmore Cabin, Snake Point Overlook and Sunshine Ridge Overlook.

Level 3 – Primitive campsites. Pull-out sites immediately adjacent to a resource road that could contain a fire ring and minimal signing, but no other infrastructure.

Level 4 – Dispersed camping opportunities. This would be the utilization of public land in a natural state for dispersed, undeveloped camping. These areas may be accessible by motorized or non-motorized travel. There would be no infrastructure in these areas.

Camping facilities – Dispersed camping and camping facilities would be allowed. In some areas, the BLM would not construct developed recreation sites based strictly on local use, unless these sites can be realized through partnerships with other government entities, local service organizations, etc. The BLM would encourage and support reasonable recreational initiatives from local and regional groups through partnerships, agreements, challenge cost sharing and volunteer efforts.

The BLM would not require camp stoves, fire pans or fire mats for dispersed camping (Level 4 opportunities).

The BLM would use upland signs, maps and brochures to identify recreational resources for the public.

Level 1 sites currently contain a full range of signs including kiosks and interpretive signs, traffic signs and other signs to provide for safe use of campgrounds. International signs would be used to mark Level 2 and 3 campsites. Signs and notices could be posted in vault toilets at Level 2 sites.

Alternative B

Special recreation use permits – The BLM would continue to issue SRPs for commercial hunting with no limit on the number issued. Each permit issued would be assigned

to the entire Monument. Outfitters and other recreational users would be required to use weed-free feed on BLM land for their livestock as a part of the integrated weed management program.

The BLM would issue special recreation use permits for commercial motorized tours. Motorized tours would be allowed on local and collector roads and some identified resource roads.

Camping facilities – The BLM would consider developing Level 1 and 2 campsites, but they would be confined to places such as, but not limited to, fishing reservoirs, overlooks and historic sites. Level 3 camping sites would be pull-out sites away from the road and fire rings would be the only improvement at these sites.

The BLM would not require camp stoves, fire pans or fire mats for dispersed camping (Level 4 opportunities).

Signing in the uplands could be used as necessary at all levels of facility development (Level 1, 2 and 3 campsites) or on BLM lands located within the uplands, but not necessarily associated with a developed site.

Alternative C

Special recreation use permits – The BLM would limit the number of SRPs for commercial hunting to the current level of outfitters (14). Each permit issued would be assigned to the entire Monument. Outfitters and other recreational users would be required to use weed-free feed on BLM land for their livestock as a part of the integrated weed management program.

The BLM would issue special recreation use permits for commercial motorized tours. Motorized tours would be allowed on local and collector roads.

Camping facilities – The BLM would consider developing Level 1 campsites, but they would only be constructed at the beginning of public access roads into the Monument. These sites could include interpretive kiosks. The BLM would encourage private landowners outside the Monument to develop Level 1 sites and services. Level 2 campsites would be “park and explore” sites where people could walk from designated parking areas. Level 3 campsites would be pull-out sites away from the road and fire rings would be the only improvement at these sites.

The BLM would implement a Leave No Trace program and camp stoves, fire pans or fire mats would be required for dispersed camping (Level 4 opportunities).

Signing at Level 1 sites in the uplands could be used as needed to safely direct traffic, provide information, or

provide interpretive messages. Signing in Level 1 sites should be commensurate with visual surroundings and level of development. Signing located in the uplands to identify campsites would be of minimum size and only used at Level 1, 2 and 3 campsites. Signing within campsites and elsewhere in the uplands would be limited to existing infrastructure.

Alternative D

Special recreation use permits – The BLM would issue SRPs for commercial hunting with no limit on the number issued. However, permits would only be issued in areas with large blocks of BLM land that have limited public access. Outfitters and other recreational users would be required to use weed-free feed on BLM land for their livestock as a part of the integrated weed management program.

The BLM would issue special recreation use permits for commercial motorized tours. Motorized tours would be restricted to two vehicles or less per operator per day on local, collector and some identified resource roads.

Camping facilities – The BLM would not develop Level 1 campsites. Level 2 sites would only be developed on main artery roads (collector and some local roads). Level 3 campsites would be pull-out sites located away from the road and fire rings would be the only improvement at these sites.

The BLM would implement a Leave No Trace program and camp stoves, fire pans or fire mats would be required for dispersed camping (Level 4 opportunities).

Signing in the uplands would be limited to Level 1 sites, commensurate with visual surroundings and level of development. Signing could be used as necessary at Level 2 sites, but only within new or existing infrastructure. No other signing would be used within the uplands except for required transportation system signs.

Alternative E

Special recreation use permits – The BLM would issue SRPs for commercial hunting with no limit on the number issued. However, permits would only be issued in areas with large blocks of BLM land that have public access. Outfitters and other recreational users would be required to use weed-free feed on BLM land for their livestock as a part of the integrated weed management program.

The BLM would not issue special recreation use permits for commercial motorized tours.

Camping facilities – The BLM would not develop Level 1, 2 or 3 campsites.

The BLM would implement a Leave No Trace program and camp stoves, fire pans or fire mats would be required for dispersed camping (Level 4 opportunities).

Signing in the uplands would be limited to safety and commensurate with visual surroundings. No other signing would be used in the uplands.

Alternative F (Preferred Alternative)

Special recreation use permits – The BLM would limit the number of SRPs for commercial outfitting and guiding (hunting) to the current level of outfitters (14). Each of the 14 permits issued would be assigned to the existing use area/lease as of 2004.

It is the BLM's goal to provide recreational opportunities via authorized commercial operators for visitors lacking the skill or equipment necessary to otherwise participate. To meet this goal, an adaptive management strategy would be developed that is responsive to changing visitor use trends and resource conditions. While the current use levels for the upland SRPs appear to be adequate, visitor demand for commercial hunting and guiding services could increase in the future. Visitor use data would continue to be collected and analyzed with the results incorporated into future management decisions. Should visitor use levels increase or patterns of use change, it may be necessary to issue additional permits, adjust use areas, incorporate conditions limiting net hunter/client use days (visitor use days), or include other conditions necessary to best manage upland permits.

Adaptive management decisions would be based on BLM's 2930 Recreation Permit Administrative Handbook, BLM's

Montana Outfitter Management Guidelines and the 1997 Memorandum of Understanding with the Montana Board of Outfitters (BLM MOU MT932-9111).

The BLM would issue special recreation use permits for commercial motorized tours. Motorized tours would be restricted to two vehicles or less per day for each commercial permit on local, collector and some identified resource roads.

Camping facilities – The BLM would consider developing Level 1 campsites, but they would only be constructed at the beginning of public access roads into the Monument. These sites could include interpretive kiosks. The BLM would encourage private landowners outside the Monument to develop Level 1 sites and services. Level 2 campsites would be park and explore sites where people could walk from designated parking areas. Level 3 sites would be pullout sites adjacent to local and collector roads or on identified/signed (camping access only) closed resource roads that are spurs (dead end within 300 feet) from a designated "open" local or collector road. Fire rings would be the only improvement at these sites. Level 3 sites would be shown on a map with information concerning the facilities and opportunities associated with the site.

The BLM would implement a Leave No Trace program and camp stoves, fire pans or fire mats would be required for dispersed camping (Level 4 opportunities).

Signing in the uplands would be limited to Level 1 sites commensurate with visual surroundings and level of development. Signing could be used as necessary at Level 2 sites, but only within new or existing infrastructure. No other signing would be used within the uplands except for required transportation system signs.

Natural Gas Exploration and Development

The alternatives in this section address natural gas exploration and development of the existing oil and gas leases in the Monument.

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Oil and Gas

The BLM's goal is to provide reasonable oil and gas exploration and development on existing leased land without diminishing the objects of the Monument.

The Proclamation does not allow new oil and gas leases in the Monument. The 43 federal oil and gas leases in the Monument are considered to have valid existing rights based upon the Proclamation, wherein it states, "The establishment of this monument is subject to valid existing rights. The Secretary of Interior shall manage development on existing oil and gas leases within the monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation." The existing leases are also in compliance with their lease terms and conditions. Chapter 3 (Minerals – Oil and Gas), Appendix K and the Glossary all provide more information about these leases.

In March 2000, the Montana Wilderness Association (MWA) filed suit challenging BLM's issuance of three leases, which are now included in the Monument, alleging the BLM did not fully comply with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA) and National Historic Preservation Act (NHPA). The leases involved in the suit, as well as nine others in the Monument were based on the BLM's 1988 West HiLine RMP. In March 2002, the United States District Court for the District of Montana, Great Falls Division, ruled in favor of the Plaintiffs and ordered the BLM to:

- Prepare an EIS for the oil and gas leasing program that covers the three leases.
- Prepare a valid biological assessment of the oil and gas leasing program in conjunction with the EIS.
- Consult with all required entities.

Under the order, all surface-disturbing activity on the three leases is prohibited pending completion of the appropriate environmental reviews. In addition, the BLM will not process any further applications for permits to drill (APDs) on any leases in the Monument until the RMP is completed (BLM 2002d). Consultation under the ESA and NHPA is discussed in Chapter 5.

Leases issued for federal minerals include stipulations that apply to the exploration and development activity that might be proposed during the lease term. Existing resources should be taken into consideration before oil and gas lease activity is permitted. Over the last 36 years of issuing leases within the Monument, eight stipulation forms were used. Many of the early leases (May 1967 through September 1971) contained no stipulations beyond the standard terms of the lease; the majority of the leases issued after July 1972 included stipulations with provisions for wildlife, cultural resources, rough terrain and threatened and endangered species, should they be present on the lease. All oil and gas lease activities would be subject to existing laws (e.g., Clean Water Act, Endangered Species Act, National Historic Preservation Act) regardless of the age of the lease or the stipulations attached to the lease.

The oil and gas leases in the Monument can be divided into two categories: those leases issued under the West HiLine RMP, and non-West HiLine RMP leases (Table 2.20). Some of the leases are located both in and outside of the Monument. The range of alternatives for the leases in the Monument (42,805 acres) focuses on the conditions of approval necessary during the APD process to protect the objects. With the exception of Alternative E, the current stipulations (Form 3109-1, and others for the older leases) would apply to portions of the leases located outside of the Monument (25,097 acres) along with other site-specific conditions determined during the permitting process. However, under Alternative E, surface disturbance would not be allowed on the entire 12 West HiLine RMP leases (12,783 acres); this includes the entire leasehold. The leases are displayed on Map 2 – Side A. Appendix K provides additional information about these oil and gas leases.

Each alternative describes management of natural gas operations for the existing leases in the Monument. The alternatives address seismic operations, conditions of approval, drilling operations, production facilities and equipment and reclamation.

Oil and Gas Lease Stipulations and Conditions of Approval

The lease stipulations which apply to Alternative A (Current Management) are detailed in Appendix K.1. The conditions of approval for all the other alternatives are displayed in Table 2.21, with specific conditions of approval for timing, controlled surface use, and no surface disturbance displayed within each alternative description.

Table 2.20
Oil and Gas Leases in the Monument

<i>MTM Lease No.</i>	<i>Lease Effective Date</i>	<i>Specific Resource Stipulations</i>	<i>Lease Acreage in the Monument</i>	<i>Lease Acreage Outside the Monument</i>	<i>Total Lease Acreage</i>
West HiLine Leases					
084559	November 1, 1995	Yes ¹	1,880	0	1,880
084560	November 1, 1995	Yes ¹	134	1,119	1,253
087212	September 1, 1997	Yes ¹	122	528	650
087658	October 1, 1998	Yes ¹	485	0	485
089082	May 1, 1999	Yes ¹	1,131	167	1,298
089452	November 1, 1999	Yes ¹	800	0	800
089469	November 1, 1999	Yes ¹	640	0	640
089473	November 1, 1999	Yes ¹	1,240	0	1,240
089474	November 1, 1999	Yes ¹	80	480	560
089475	November 1, 1999	Yes ¹	1,280	0	1,280
089476	December 1, 1999	Yes ¹	1,120	160	1,280
089482	November 1, 1999	Yes ¹	1,416	0	1,416
Subtotal			10,328	2,454	12,782
Non-West HiLine Leases					
1565	May 1, 1967	None	2,560	0	2,560
1568	May 1, 1967	None	2,320	240	2,560
1578	May 1, 1967	None	575	1,988	2,563
1885	June 1, 1967	None	40	611	651
1886	June 1, 1967	None	1,920	640	2,560
1888	June 1, 1967	None	480	1,982	2,462
1903	June 1, 1967	None	1,360	200	1,560
1903-B	June 1, 1967	None	320	240	560
1914	June 1, 1967	None	200	440	640
2060	July 1, 1967	None	640	0	640
2061	July 1, 1967	None	640	0	640
13816	November 1, 1969	None	2,533	0	2,533
13818	November 1, 1969	None	2,532	0	2,532
13821-A	November 1, 1969	None	1,099	0	1,099
13827	November 1, 1969	None	1,156	0	1,156
16098	September 1, 1970	None	1,240	1,280	2,520
16102	September 1, 1970	None	1,506	163	1,669
16103	September 1, 1970	None	13	2,507	2,520
16327	October 1, 1970	None	80	2,358	2,438
16458	October 1, 1970	None	688	1,272	1,960
16461	October 1, 1970	None	2,547	0	2,547
16617	November 1, 1970	None	490	929	1,419
16618	November 1, 1970	None	320	2,240	2,560
16939	December 1, 1970	None	2,530	0	2,530
17376	February 1, 1971	None	40	80	120
18274	July 1, 1971	Some	1,367	1,160	2,527
18282	May 1, 1973	Some	851	1,680	2,531
18283	May 1, 1973	Some	1,240	1,320	2,560
19446	May 1, 1971	None	110	1,113	1,223
53751	June 1, 1982	Yes ¹	680	160	840
89460	November 1, 1999	Yes ¹	400	40	440
Subtotal			32,477	22,643	55,120
Total			42,805	25,097	67,902

¹ See Table 2.21 and Appendix K.1.

<p>Table 2.21</p> <p>Stipulations for Alternative A and the Oil and Gas Conditions of Approval (by Alternative)</p>						
Resource	Stipulations Alternative A (<i>Current Management</i>)	Oil and Gas Conditions of Approval				Alternative F (<i>Preferred Alternative</i>)
		Alternative B	Alternative C	Alternative D	Alternative E	
Greater Sage-Grouse						
<i>Lek</i>	<p>For 14 leases, surface disturbance may be restricted or excluded within 1/4 mile from identified sage-grouse leks.¹</p> <p>For the other 29 leases, standard terms and conditions would apply.²</p>	No surface disturbance within 1/4 mile of sage-grouse leks.				No surface disturbance within 1/4 mile of sage-grouse leks.
<i>Nesting Area</i>	<p>For 14 leases, surface disturbance may be restricted or excluded during the period March 1 and June 30.¹</p> <p>For the other 29 leases, standard terms and conditions would apply.²</p>	No surface disturbance from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek.				No surface disturbance from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek.
<i>Crucial Winter Habitat</i>	<p>For 14 leases, surface disturbance may be restricted or excluded during the period December 1 to May 15.¹</p> <p>For the other 29 leases, standard terms and conditions would apply.²</p>	No surface disturbance from December 1 to March 31 within crucial winter habitat.				No surface disturbance from December 1 to March 31 within crucial winter habitat.

Table 2.21 (continued)
Stipulations for Alternative A and the Oil and Gas Conditions of Approval (by Alternative)

Oil and Gas Conditions of Approval						
Stipulations						
Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
Black-tailed Prairie Dog	For 14 leases, surface disturbance may be restricted or excluded within 1/4 mile of identified essential habitat of prairie dogs. ¹ For the other 29 leases, standard terms and conditions would apply. ²	No surface disturbance on any prairie dog towns.	Surface-disturbing activities would avoid, or minimize, disturbance on prairie dog towns.	If an activity would adversely impact prairie dogs and/or associated species, surface disturbance would not be allowed within 1/4 mile of prairie dog towns.		If an activity would adversely impact prairie dogs and/or associated species, new surface disturbance would not be allowed within 1/4 mile of prairie dog towns.
Designated Sensitive Species	For 14 leases, surface disturbance may be restricted or excluded within identified crucial habitat or within 1/4 mile of active nests. ¹ For the other 29 leases, standard terms and conditions would apply. ²	Surface-disturbing activities may be controlled or excluded within 200 meters of the activity or the activity delayed 60 days within identified crucial habitat or active nests.	No surface disturbance within identified crucial habitat or within 1/4 mile of active nests.	No surface disturbance within identified crucial habitat or within 1/4 mile of active nests. Surface disturbance may be prohibited from March 1 to August 1 within 1/2 mile of active nests.	No surface disturbance within identified crucial habitat or within 1/2 mile of active nests.	Surface disturbance may be controlled or excluded within 1/4 mile of the activity or the activity delayed 90 days within identified crucial habitat or active nests. Surface disturbance may be prohibited from March 1 to August 1 within 1/2 mile of active ferruginous hawk nests.
Bald Eagle	For 14 leases, surface disturbance may be controlled or excluded within 1/4 mile of identified habitat of the bald eagle. ¹ For the other 29 leases, standard terms and conditions would apply. ²	No surface disturbance within 1 mile of active winter roosting areas from November 15 to February 29, if disturbance could cause an adverse effect. No surface disturbance within 1 mile of active bald eagle nest sites from February 1 to July 31, if disturbance could cause nest abandonment or failure.	No surface disturbance within 1/2 mile of a nest that has been active in the last 7 years.	No surface disturbance within 1/2 mile of a nest that has been active in the last 7 years and within riparian area nesting habitat.		No surface disturbance within 1/2 mile of a nest that has been active in the last 7 years, if disturbance could cause nest abandonment or failure

<p>Table 2.21 (continued)</p> <p>Stipulations for Alternative A and the Oil and Gas Conditions of Approval (by Alternative)</p>					
Resource	Stipulations Alternative A (Current Management)	Oil and Gas Conditions of Approval			
		Alternative B	Alternative C	Alternative D	Alternative E
Big Game Winter Range (Deer, Elk, & Antelope)	For 14 leases, surface disturbance may be restricted or excluded from December 1 to May 15 on winter range. ¹	No surface disturbance from December 1 to March 31 within winter range.	No surface disturbance from December 1 to May 15 within winter range.	No surface disturbance from December 1 to May 15 within winter range.	No surface disturbance within winter range.
	For the other 29 leases, standard terms and conditions would apply. ²	No surface disturbance from December 1 to March 31 within winter range.	No surface disturbance from December 1 to May 15 within winter range.	No surface disturbance from December 1 to May 15 within winter range.	No surface disturbance from December 1 to March 31 within winter range.
Bighorn Sheep Distribution	For 14 leases, surface disturbance may be controlled or excluded within 200 meters of the activity or the activity delayed 60 days. ¹	Surface-disturbing activities may be controlled or excluded within 200 meters of the activity or the activity delayed 60 days.	No surface disturbance from December 1 to March 31 within bighorn sheep distribution.	No surface disturbance from December 1 to March 31 within bighorn sheep distribution.	No surface disturbance from December 1 to March 31 within bighorn sheep distribution.
Bighorn Sheep Lambing Areas	For 14 leases, surface disturbance may be controlled or excluded within 200 meters of the activity or the activity delayed 60 days. ¹	No surface disturbance from April 1 to June 15 in bighorn sheep lambing areas.	No surface disturbance from December 1 to March 31 within bighorn sheep distribution.	No surface disturbance within bighorn sheep distribution.	No surface disturbance within bighorn sheep distribution.
	For the other 29 leases, standard terms and conditions would apply. ²	No surface disturbance from April 1 to June 15 in bighorn sheep lambing areas.	No surface disturbance from December 1 to March 31 within bighorn sheep distribution.	No surface disturbance within bighorn sheep distribution.	No surface disturbance within bighorn sheep distribution.

Table 2.21 (continued)

Stipulations for Alternative A and the Oil and Gas Conditions of Approval (by Alternative)

Oil and Gas Conditions of Approval						
Resource	Stipulations Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
Streams and Riparian/ Wetland Areas	For 14 leases, surface disturbance may be restricted within 500 feet of the channels of reservoirs, ephemeral, intermittent and perennial streams. ¹ Surface disturbance may be restricted or excluded within 1,000 feet of riparian and wetland areas. ¹ For the other 29 leases, standard terms and conditions would apply. ²	No surface disturbance within the channels of ephemeral, intermittent, and perennial streams, or within riparian and wetland areas.	No surface disturbance within 1,000 feet of the channels of ephemeral, intermittent, and perennial streams, or within 1,000 feet of riparian and wetland areas.	No surface disturbance within 1/4 mile of the channels of ephemeral, intermittent, and perennial streams, or within 1/4 mile of the outer margins of riparian and wetland areas.	No surface disturbance within 1/4 mile of the channels of ephemeral, intermittent, and perennial streams, or within 500 feet of the outer margins of riparian and wetland areas.	No surface disturbance within 500 feet of the channels of ephemeral, intermittent, and perennial streams, or within 500 feet of the outer margins of riparian and wetland areas.
Soils	For 14 leases, surface disturbance may be restricted or excluded on slopes over 30% or on slopes over 20% with severely erodable and/or slumping soils. ¹ For the other 29 leases, standard terms and conditions would apply. ²	Prior to surface disturbance on slopes 30% and greater an engineering and reclamation plan must be approved by the authorized officer.	Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erodable and/or slumping soils, an engineering and reclamation plan must be approved by the authorized officer.	Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erodable and/or slumping soils, an engineering and reclamation plan must be approved by the authorized officer.	No surface disturbance on slopes 20% and greater.	Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erodable and/or slumping soils, an engineering and reclamation plan must be approved by the authorized officer.
			No surface disturbance on slopes 40% and greater. This applies to well locations, facilities and roads. Exceptions would apply.	No surface disturbance on slopes 40% and greater. This applies to well locations, facilities and roads. No exceptions would apply.		No surface disturbance on slopes 40% and greater. This applies to well locations, facilities and roads. Exceptions would apply to pipelines and to access roads for short distances (less than 300 feet).

Table 2.21 (continued)

Stipulations for Alternative A and the Oil and Gas Conditions of Approval (by Alternative)					
Resource	Stipulations Alternative A (Current Management)	Oil and Gas Conditions of Approval			
		Alternative B	Alternative C	Alternative D	Alternative E (Preferred Alternative)
VRM Class I	For 14 leases, all surface disturbance, semi-permanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives. ¹ For the other 29 leases, standard terms and conditions would apply. ²	All surface-disturbing activities, semi-permanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives.	Reduce the visual contrast on public land in the existing landscape by utilizing 1) proper site selection; 2) reduction of soil and vegetative disturbance; 3) choice of color; and 4) over time, return the disturbed area to a seamless, natural landscape.	No surface disturbance in VRM Class I areas.	
VRM Class II, III and IV	For 14 leases, all surface disturbance, semi-permanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives. ¹ For the other 29 leases, standard terms and conditions would apply. ²	All surface-disturbing activities, semi-permanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives.	Reduce the visual contrast on public land in the existing landscape by utilizing 1) proper site selection; 2) reduction of soil and vegetative disturbance; 3) choice of color; and 4) over time, return the disturbed area to a seamless, natural landscape.	No surface disturbance in VRM Class II, III and IV areas.	Reduce the visual contrast on public land in the existing landscape by utilizing 1) proper site selection; 2) reduction of soil and vegetative disturbance; 3) choice of color; and 4) over time, return the disturbed area to a seamless, natural landscape.

Table 2.21 (continued) Stipulations for Alternative A and the Oil and Gas Conditions of Approval (by Alternative)					
Resource	Stipulations Alternative A (Current Management)	Oil and Gas Conditions of Approval			
		Alternative B	Alternative C	Alternative D	Alternative F (Preferred Alternative)
Recreation Sites	For 14 leases, surface disturbance would be restricted 300 feet from developed recreation areas and undeveloped recreation areas receiving concentrated public use. ¹ For the other 29 leases, standard terms and conditions would apply. ²	No surface-disturbing activity within 300 feet of developed recreation areas and undeveloped recreation areas receiving concentrated public use.	No surface-disturbing activity within the line of sight or sound or 300 feet, whichever is closer. Work-over types of operations would be limited to weekdays only, except for emergency situations when operations would be allowed.	No surface-disturbing activity within the line of sight or sound or 300 feet, whichever is closer. Work-over types of operations, like well fracing or maintenance, would be limited to Tuesdays, Wednesdays and Thursdays.	No surface-disturbing activity within the line of sight or sound or 300 feet, whichever is closer. Work-over types of operations would be limited to weekdays only, except for emergency situations when operations would be allowed.

¹ See Table 2.20 and Appendix K.1.² Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed site or the activity delayed 60 days (43 CFR 3101.1-2).

Alternative A (Current Management)

West HiLine Oil and Gas Leases – Twelve oil and gas leases were issued under the West HiLine RMP (Table 2.20). These oil and gas leases include stipulations for a variety of resources should they be present on the lease during the permitting process (Appendix K.1). The stipulations include: seasonal or distance restrictions to protect sage-grouse nesting areas, sage-grouse winter habitat and big game winter range; controlled surface use to protect soils and visual resources; no surface occupancy to protect sage-grouse leks, designated sensitive species and streams and riparian/wetland areas. A notice is used to inform lessees and operators of the requirements for cultural resource historic preservation compliance and compliance with the Endangered Species Act.

Non-West HiLine Oil and Gas Leases – Thirty-one non-West HiLine oil and gas leases were issued over a number of years, some with stipulations but most with no stipulations (Table 2.20 and Appendix K.1).

Two oil and gas leases were issued with stipulations for a variety of resources, which are the same as those attached to the West HiLine leases (Appendix K.1).

Three oil and gas leases were issued with reasonable requirements/conditions for soil erosion, air and water pollution, and unnecessary damage to the surface vegetation. The stipulations also included no occupancy of the surface within specific distances from improved roads, highways, trails, and water sources (lakes, ponds, reservoirs, and springs) (Appendix K.1).

Twenty-six oil and gas leases were issued without stipulations.

During the permitting process for APDs, conditions of approval may also be applied to surface-disturbing activities consistent with the leases rights. These conditions would be considered on a case-by-case basis during the well onsite evaluation and review of the APD.

Alternative B

Under this Alternative, conditions of approval would protect the objects in the Monument. The conditions of approval would apply to all the oil and gas lease acreage (42,805 acres) in the Monument (Table 2.21). The conditions of approval would be applied to the APD after an onsite evaluation indicates the presence of the specific resource and after considering the waivers, exceptions, and modifications list in Appendix K.1. The current stipulations (Form 3109-1) would apply to that portion of five of the 12 West HiLine oil and gas leases that are not entirely within the Monument (2,454 acres).

Seasonal or distance restrictions would be placed on oil and gas activities to protect sage-grouse nesting areas and winter habitat, bald eagle nest sites and nesting habitat, big game winter range and bighorn sheep lambing areas.

Timing – Alternative B

Greater Sage-Grouse Nesting Zone – Surface disturbance would be prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. This condition would not apply to the operation and maintenance of production facilities.

Greater Sage-Grouse Crucial Winter Habitat – Surface disturbance would be prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition would not apply to the operation and maintenance of production facilities.

Bald Eagle Nest Sites and Nesting Habitat – Surface disturbance would be prohibited within 1 mile of active winter roosting areas from November 15 to February 29, if disturbance could cause an adverse effect.

Big Game Winter Range – Surface disturbance would be prohibited from December 1 to March 31 within winter range for deer and elk and crucial antelope winter range. This condition would not apply to the operation and maintenance of production facilities.

Bighorn Sheep Lambing Areas – Surface disturbance would be prohibited from April 1 to June 15 within bighorn sheep lambing areas. This condition would not apply to the operation and maintenance of production facilities.

Controlled surface use conditions or standard lease terms would be applied to protect designated sensitive species, bighorn sheep distribution, soils, visual resources and cultural resources.

Controlled Surface Use – Alternative B

Designated Sensitive Species – Surface disturbance may be controlled or excluded within 200 meters of the proposed site or the activity delayed 60 days within identified crucial habitat or active nests.

Bighorn Sheep Distribution – Surface disturbance may be controlled or excluded within 200 meters of the proposed site or the activity delayed 60 days within bighorn sheep distribution.

Soils/Steep Slopes – Prior to surface disturbance on slopes 30% and greater a certified engineering and reclamation plan must be approved by the authorized

officer. This plan must demonstrate how the following would be accomplished:

- Site productivity would be restored.
- Surface runoff would be adequately controlled.
- The site and adjacent areas would be protected from accelerated erosion, such as rilling, gullying, piping, slope failure, and mass wasting.
- Nearby watercourses would be protected from sedimentation. Water quality and quantity would be in conformance with state and federal water quality laws.
- Surface-disturbing activities would not be conducted during extended wet periods.
- Construction or reclamation would not be allowed when soils are frozen.

Visual Resource Management (VRM) Classes I, II, III and IV – All surface-disturbing activities, semi-permanent and permanent facilities in VRM Class I, II, III, and IV areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Historic Properties and/or Cultural Resources – The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Surface disturbance would not be allowed in order to protect sage-grouse leks, black-tailed prairie dogs, streams and riparian/wetland areas and developed recreation sites.

No Surface Disturbance – Alternative B

Greater Sage-Grouse Leks – Surface disturbance would be prohibited within 1/4 mile of sage-grouse leks.

Black-tailed Prairie Dogs – Surface disturbance would be prohibited on prairie dog towns.

Streams and Riparian/Wetland Areas – Surface disturbance would be prohibited within the channels of ephemeral, intermittent, and perennial streams, or

within riparian and wetland areas.

Recreation – Surface disturbance would be prohibited within 300 feet of developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Alternative C

Under this Alternative, the existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects in the Monument. The conditions of approval would apply to all the oil and gas lease acreage (42,805 acres) in the Monument (Table 2.21). The conditions of approval would be applied to the APD after an onsite evaluation indicates the presence of the specific resource and after considering the waivers, exceptions, and modifications list in Appendix K.1. The current stipulations (Form 3109-1) would apply to that portion of five of the 12 West HiLine oil and gas leases that are not entirely within the Monument (2,454 acres).

Seasonal or distance restrictions would be placed on oil and gas activities to protect sage-grouse nesting areas and winter habitat, big game winter range, bighorn sheep distribution and bighorn sheep lambing areas.

Timing – Alternative C

Greater Sage-Grouse Nesting Zone – Surface use would be prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. This condition would not apply to the operation and maintenance of production facilities.

Greater Sage-Grouse Crucial Winter Habitat – Surface disturbance would be prohibited from December 1 to March 31 within winter habitat for sage-grouse. This condition would not apply to the operation and maintenance of production facilities.

Big Game Winter Range – Surface disturbance would be prohibited from December 1 to March 31 within winter range for deer and elk and crucial antelope winter range. This condition would not apply to the operation and maintenance of production facilities.

Bighorn Sheep Distribution – Surface disturbance would be prohibited from December 1 to March 31 within bighorn sheep distribution areas. This condition would not apply to the operation and maintenance of production facilities.

Bighorn Sheep Lambing Areas – Surface disturbance would be prohibited from April 1 to June 15 within bighorn sheep lambing areas. This condition would

not apply to the operation and maintenance of production facilities.

Controlled surface use conditions would be applied to protect black-tailed prairie dogs, soils, visual resources and cultural resources.

Controlled Surface Use – Alternative C

Black-tailed Prairie Dogs – Surface disturbance would avoid, or minimize, disturbance on prairie dog towns.

Soils/Steep Slopes – Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following would be accomplished:

- Site productivity would be restored.
- Surface runoff would be adequately controlled.
- The site and adjacent areas would be protected from accelerated erosion, such as rilling, gulying, piping, slope failure, and mass wasting.
- Nearby watercourses would be protected from sedimentation. Water quality and quantity would be in conformance with state and federal water quality laws.
- Surface-disturbing activities would not be conducted during extended wet periods.
- Construction or reclamation would not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Visual Resource Management (VRM) Class I – All surface-disturbing activities, semi-permanent and permanent facilities in VRM Class I would utilize proper site selection; reduction of soil and vegetative disturbance; choice of color; and over time, return the disturbed area to a seamless, natural landscape.

Visual Resource Management (VRM) Classes II and III – All surface-disturbing activities, semi-permanent and permanent facilities in VRM Class II and III areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Historic Properties and/or Cultural Resources – The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other

statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Surface disturbance would not be allowed in order to protect sage-grouse leks, designated sensitive species, bald eagle nest sites and nesting habitat, streams and riparian/wetland areas, soils on slopes 40% and greater, and developed recreation areas.

No Surface Disturbance – Alternative C

Greater Sage-Grouse Leks – Surface disturbance would be prohibited within 1/4 mile of sage-grouse leks.

Designated Sensitive Species – Surface disturbance would be prohibited within identified crucial habitat or within 1/4 mile of active nests.

Bald Eagle Nest Sites and Nesting Habitat – Surface disturbance would be prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years.

Streams and Riparian/Wetland Areas – Surface disturbance would be prohibited within 1,000 feet of the channel of ephemeral, intermittent, and perennial streams, or within 1,000 feet of riparian and wetland areas.

Soils/Steep Slopes – Surface disturbance would be prohibited on slopes 40% and greater.

Recreation – Surface disturbance would be prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas and undeveloped recreation areas receiving concentrated public use. Work-over types of operations would be limited to weekdays, except for emergency situations when operations would be allowed.

Alternative D

Under this Alternative, the existing lease stipulations would be strengthened by implementing of conditions of approval to protect the objects in the Monument. The conditions of approval would apply to all the oil and gas lease acreage (42,805 acres) in the Monument (Table 2.21). The conditions of approval would be applied to the APD after an onsite evaluation indicates the presence of the specific

resource and after considering the waivers, exceptions and modifications list in Appendix K.1. The current stipulations (Form 3109-1) would apply to that portion of five of the 12 West HiLine oil and gas leases that are not entirely within the Monument (2,454 acres).

Seasonal or distance restrictions would be placed on oil and gas activities to protect sage-grouse nesting areas and winter habitat, active nests of designated sensitive species, big game winter range and bighorn sheep distribution.

Timing – Alternative D

Greater Sage-Grouse Nesting Zone – Surface disturbance would be prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. This condition would not apply to the operation and maintenance of production facilities.

Greater Sage-Grouse Crucial Winter Habitat – Surface disturbance would be prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition would not apply to the operation and maintenance of production facilities.

Designated Sensitive Species – Surface disturbance would be prohibited from March 1 to August 1 within 1/4 mile of active nests.

Big Game Winter Range – Surface disturbance would be prohibited from December 1 to May 15 within winter range for deer and elk and crucial antelope winter range. This condition would not apply to the operation and maintenance of production facilities.

Bighorn Sheep Distribution – Surface disturbance would be prohibited from December 1 to March 31 within bighorn sheep distribution areas. This condition would not apply to the operation and maintenance of production facilities.

Controlled surface use conditions would be applied to protect most soils, visual resources in Class II, III and IV areas and cultural resources.

Controlled Surface Use – Alternative D

Soils/Steep Slopes – Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following would be accomplished:

- Site productivity would be restored.
- Surface runoff would be adequately controlled.
- The site and adjacent areas would be protected

from accelerated erosion, such as rilling, gullyng, piping, slope failure, and mass wasting.

- Nearby watercourses would be protected from sedimentation. Water quality and quantity would be in conformance with state and federal water quality laws.
- Surface-disturbing activities would not be conducted during extended wet periods.
- Construction or reclamation would not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Visual Resource Management (VRM) Class II – All surface-disturbing activities, semi-permanent and permanent facilities in VRM Class II would utilize proper site selection; reduction of soil and vegetative disturbance; choice of color; and over time, return the disturbed area to a seamless, natural landscape.

Historic Properties and/or Cultural Resources – The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Surface disturbance would not be allowed in order to protect sage-grouse leks, black-tailed prairie dogs, designated sensitive species, bald eagle nest sites and nesting habitat, bighorn sheep lambing areas, streams and riparian/wetland areas, soils on slopes 40% and greater, visual resources in VRM Class I areas and developed recreation areas.

No Surface Disturbance – Alternative D

Greater Sage-Grouse Leks – Surface disturbance would be prohibited within 1/4 mile of sage-grouse leks.

Black-tailed Prairie Dogs – Surface disturbance would be prohibited within 1/4 mile of prairie dog towns if an activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – Surface disturbance would be prohibited within identified crucial habitat and within 1/4 mile of active nests.

Bald Eagle Nest Sites and Nesting Habitat – Surface disturbance would be prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years and within riparian area nesting habitat.

Bighorn Sheep Lambing Areas – Surface disturbance would be prohibited within bighorn sheep lambing areas. This condition would not apply to the operation and maintenance of production facilities.

Streams and Riparian/Wetland Areas – Surface disturbance would be prohibited within 1/4 mile of the channels of ephemeral, intermittent, and perennial streams, or within 1/4 mile of the outer margins of riparian and wetland areas.

Soils/Steep Slopes – Surface disturbance would be prohibited on slopes 40% and greater. This would apply to locations, facilities and roads.

Visual Resource Management (VRM) Class I – Surface disturbance would be prohibited in VRM Class I areas.

Recreation – Surface disturbance would be prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas and undeveloped recreation areas receiving concentrated public use. Work-over types of operations, like well fracing or maintenance, would be limited to Tuesdays, Wednesdays, and Thursdays.

Alternative E

Surface disturbance would not be allowed on all 12 West HiLine oil and gas leases (Table 2.21). This includes the entire leasehold (12,783 acres). APDs on these leases would not be processed.

Conditions of approval would be applied to surface-disturbing activities for the 31 non-West HiLine oil and gas leases in the Monument (32,477 acres). Table 2.21 and Appendix K.1 provide more information about these leases. The conditions of approval would be applied at the activity level phase, after an onsite evaluation indicates the presence of the specific resource. The application of conditions of approval would be consistent with lease rights.

Surface use would be controlled to protect cultural resources.

Controlled Surface Use – Alternative E

Historic Properties and/or Cultural Resources – The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Surface disturbance would not be allowed in order to protect sage-grouse leks, nesting areas and winter habitat, black-tailed prairie dogs, designated sensitive species, bald eagle nest sites and nesting habitat, big game winter range, bighorn sheep distribution, bighorn sheep lambing areas, streams and riparian/wetland areas, soils on slopes 20% and greater, visual resources and developed recreation sites.

No Surface Disturbance – Alternative E

Greater Sage-Grouse Leks – Surface disturbance would be prohibited within 2 miles of sage-grouse leks.

Greater Sage-Grouse Nesting Zone – Surface disturbance would be prohibited within 2 miles of sage-grouse leks.

Greater Sage-Grouse Crucial Winter Habitat – Surface disturbance would be prohibited within crucial winter habitat for sage-grouse.

Black-tailed Prairie Dogs – Surface disturbance would be prohibited within 1/4 mile of prairie dog towns.

Designated Sensitive Species – Surface disturbance would be prohibited within identified crucial habitat and within 1/2 mile of active nests.

Bald Eagle Nest Sites and Nesting Habitat – Surface disturbance would be prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years and within riparian area nesting habitat.

Big Game Winter Range – Surface disturbance would be prohibited within crucial winter range for elk, mule deer, and antelope.

Bighorn Sheep Distribution – Surface disturbance would be prohibited within bighorn sheep distribution areas.

Bighorn Sheep Lambing Areas – Surface disturbance would be prohibited within 1 mile of bighorn sheep lambing areas, if such activities would adversely impact lamb survival.

Streams and Riparian/Wetland Areas – Surface disturbance would be prohibited within 1/4 mile of the channels of ephemeral, intermittent, and perennial streams, or within 1/4 mile of the outer margins of riparian and wetland areas.

Soils/Steep Slopes – Surface disturbance would be prohibited on slopes 20% and greater.

Visual Resource Management (VRM) Classes I and II – Surface disturbance would be prohibited in VRM Class I and II areas.

Recreation – Surface disturbance would be prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas and undeveloped recreation areas receiving concentrated public use. Work-over types of operations, like well fracing or maintenance, would be limited to Tuesdays, Wednesdays, and Thursdays.

Alternative F (Preferred Alternative)

Under this Alternative, the existing lease stipulations would be strengthened by implementing conditions of approval to protect the objects in the Monument. The conditions of approval would apply to all the oil and gas lease acreage (42,805 acres) in the Monument (Table 2.21). The conditions of approval would be applied to the APD after an onsite evaluation indicates the presence of the specific resource and after considering the waivers, exceptions and modifications list in Appendix K.1. The current stipulations (Form 3109-1) would apply to that portion of five of the 12 West HiLine oil and gas leases that are not entirely within the Monument (2,454 acres).

Seasonal or distance restrictions would be placed on oil and gas activities to protect sage-grouse nesting areas and winter habitat, active ferruginous hawk nests, big game winter range, and bighorn sheep distribution and bighorn sheep lambing areas.

Timing – Alternative F

Greater Sage-Grouse Nesting Zone – Surface disturbance would be prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek.

Travel on identified designated roads may include these timing restrictions or limited site visits.

Greater Sage-Grouse Crucial Winter Habitat – Surface disturbance would be prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition would not apply to the operation and maintenance of production facilities. Travel on identified designated roads may include these timing restrictions or limited site visits.

Ferruginous Hawk – Surface disturbance would be prohibited from March 1 to August 1 within 1/2 mile of active ferruginous hawk nest sites.

Big Game Winter Range – Surface disturbance would be prohibited from December 1 to March 31 within winter range for elk and deer and crucial antelope winter range. Travel on identified designated roads may include these timing restrictions or limited site visits.

Bighorn Sheep Distribution – Surface disturbance would be prohibited from December 1 to March 31 within bighorn sheep distribution areas. Travel on identified designated roads may include these timing restrictions or limited site visits.

Bighorn Sheep Lambing Areas – Surface disturbance would be prohibited from April 1 to June 15 within bighorn sheep lambing areas. Travel on identified designated roads may include these timing restrictions or limited site visits.

Controlled surface use conditions would be applied to protect black-tailed prairie dogs, designated sensitive species, most soils, visual resources in Class II, III and IV areas and cultural resources.

Controlled Surface Use – Alternative F

Black-tailed Prairie Dogs – Surface disturbance may be controlled or excluded within 1/4 mile of prairie dog towns, if an activity would adversely impact prairie dogs and/or associated species.

Designated Sensitive Species – Surface disturbance may be controlled or excluded within 1/4 mile of the proposed site or the activity delayed 90 days within identified crucial habitat or active nests.

Soils/Steep Slopes – Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following would be accomplished:

- Site productivity would be restored.
- Surface runoff would be adequately controlled.
- The site and adjacent areas would be protected from accelerated erosion, such as rilling, gullying, piping, slope failure, and mass wasting.
- Nearby watercourses would be protected from sedimentation. Water quality and quantity would be in conformance with state and federal water quality laws.
- Surface-disturbing activities would not be conducted during extended wet periods.
- Construction or reclamation would not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Visual Resource Management (VRM) Classes II, III and IV – All surface-disturbing activities, semi-permanent and permanent facilities in VRM Classes II, II and IV would utilize proper site selection; reduction of soil and vegetative disturbance; choice of color; and over time, return the disturbed area to a seamless, natural landscape.

Historic Properties and/or Cultural Resources – The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Surface disturbance would not be allowed in order to protect sage-grouse leks, bald eagle nest sites and nesting habitat, streams and riparian/wetland areas, soils on slopes 40% and greater, visual resources in VRM Class I areas and developed recreation areas.

No Surface Disturbance – Alternative F

Greater Sage-Grouse Leks – Surface disturbance would be prohibited within 1/4 mile of sage-grouse leks.

Bald Eagle Nest Sites and Nesting Habitat – Surface disturbance would be prohibited within 1/2 mile of

known bald eagle nest sites that have been active within the past 7 years, if disturbance could cause nest abandonment or failure.

Streams and Riparian/Wetland Areas – Surface disturbance would be prohibited within 500 feet of the channels of ephemeral, intermittent, and perennial streams, or within 500 feet of the outer margins of riparian and wetland areas.

Soils/Steep Slopes – Surface disturbance would be prohibited on slopes 40% and greater.

Visual Resource Management (VRM) Class I – Surface disturbance would be prohibited in VRM Class I areas.

Recreation – Surface disturbance would be prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas (Level 1, 2, and 3 sites) and undeveloped recreation areas receiving concentrated public use. Work-over types of operations would be limited to weekdays, except for emergency situations when operations would be allowed.

Natural Gas Operations

Alternative A (Current Management)

Seismic – Seismic operations planned off of roads must demonstrate that proposed transportation and exploration methods would minimize the potential for creating new roads or trails. All seismic activities would be subject to the wildlife mitigation measures discussed earlier in this chapter.

Drilling Operations – The BLM would be consistent with the state spacing requirements and current Board Orders for the Leroy and Sawtooth Mountain Gas Fields. Currently, one well is allowed per half section within the Leroy Gas Field and one well per section is allowed within the Sawtooth Mountain Gas Field (Appendix K.2). Each field contains multiple exceptions for additional wells to be drilled per half section/sections or location exceptions. Changes, exceptions or modifications would be allowed to maximize the extraction of the natural gas resource.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), American Petroleum Institute (API) recommended practices and standard operating procedures, including surface operating standards for natural gas exploration and development (BLM and FS 1989, referred to as the “Gold Book”).

Administrative access on resource roads for natural gas operations would be allowed with no restrictions.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security), No. 5 (Measurement of gas), and No. 7 (Disposal of produced water); and BMPs (Appendix G).

The placement and construction of pipelines would follow standards consistent with the Gold Book (BLM and FS 1989) and operating procedures, including allowing cross-country pipelines.

Administrative access on resource roads would be allowed with no restrictions.

Reclamation – Reclamation would follow BMPs and standard operating procedures (Appendix G). Previously disturbed sites (i.e., current wells with final abandonment notices with less than 100% reclamation) would be allowed to reclaim naturally.

Alternative B

Seismic – Seismic operations planned off of roads must demonstrate that proposed transportation and exploration methods would minimize the potential for creating new roads or trails. All seismic activities would be subject to the wildlife mitigation measures discussed earlier in this chapter.

Drilling Operations – The BLM would limit spacing to no more than four well locations/sites per section, subject to other siting criteria (i.e., visual resources, sensitive wildlife species and slope/soil concerns). Changes, exceptions or modifications would be allowed in the interest of maximizing the extraction of the natural gas resource.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), API recommended practices and standard operating procedures, including surface operating standards for natural gas exploration and development (BLM and FS 1989, referred to as the “Gold Book”).

Only the minimal amount of surface disturbance would be permitted for drilling and production phases. The disturbed area would be confined to an acceptable (safe) area/space based on the type of operation. The objective would be to achieve a desired effect on the land with minimum disturbance by using low impact drilling technology, developing multiple wells from one location or staying away from trouble or problem areas. This would include the access to a drilling site. The objective would be to reduce impacts,

avoiding areas that could be subject to high impacts and locating the operation away from sensitive areas.

Administrative access on resource roads for natural gas operations would be allowed with no restrictions.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security) and No. 5 (Measurement of gas); and BMPs (Appendix G).

Pipeline placement and construction would follow standards consistent with the Gold Book (BLM and FS 1989) and operating procedures, including allowing cross-country pipelines.

The BLM would require operators to utilize wildlife mitigation and BMPs on all gas compressors for noise control (Appendix G and Appendix L.1). Compression facilities requiring more than 1/10 acre (total surface disturbance) would not be allowed on BLM land. Pumping units would be allowed, provided all noise producing mechanisms could be mitigated to acceptable levels for wildlife considerations (Appendix L.1). Fencing, meter/well sheds, risers, well head equipment and water disposal pits would be allowed.

Water disposal would follow current regulations and standard operating procedures (43 CFR 8164.1 Onshore Oil and Gas Order No. 7 (Disposal of produced water)). Water disposal pits would be sized according to water production with sloped berms into the pit. All containment systems would require wildlife escape ramps where necessary. For wells in the Monument, only two trips per month would be authorized to transport water off site. Exceptions would be considered on a case-by-case basis. The operator would have the option to dispose of the water via a pipeline to an approved facility, disposal pits (including tanks) or in an approved water disposal well if these other options are not viable.

Administrative access on resource roads would be allowed with no restrictions.

Reclamation – Reclamation efforts would follow standard operating procedures and BMPs (Appendix G). When reclamation activities could cause more surface disturbance and natural reclamation is possible, disturbed surfaces would be allowed to reclaim naturally. The reclamation standards would minimize erosion and establish native vegetation.

Alternative C

Seismic – Seismic operations (vehicle activity) would be restricted to designated roads. Exceptions would be autho-

rized on a case-by-case basis dependent upon the degree of data needed to identify the resource and the operator's ability to mitigate surface disturbance. All seismic activities would be subject to the wildlife mitigation measures discussed earlier in this chapter.

Drilling Operations – The BLM would be consistent with the state spacing requirements and current Board Orders for the Leroy and Sawtooth Mountain Gas Fields. Currently, one well is allowed per half section within the Leroy Gas Field and one well per section is allowed within the Sawtooth Mountain Gas Field. Each field contains multiple exceptions for additional wells to be drilled per half section/sections or location exceptions. Changes, exceptions or modifications are allowed to maximize the extraction of the natural gas resource.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), API recommended practices and standard operating procedures, including surface operating standards for natural gas exploration and development (BLM and FS 1989, referred to as the “Gold Book”).

Only the minimal amount of surface disturbance would be permitted for drilling and production phases. The disturbed area would be confined to an acceptable (safe) area/space based on the type of operation. The goal would be to achieve a desired effect on the land with minimum disturbance by using low impact drilling technology, developing multiple wells from one location or staying away from trouble or problem areas. This would include the access to a drilling site. The goals would be to reduce impacts, avoiding areas that could be subject to high impacts and locating the operation away from sensitive areas.

Vehicle activity would be restricted to designated roads. Exceptions would be authorized on a case-by-case basis dependent upon the degree of data needed to identify the resource and the operator's ability to mitigate surface disturbance.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security) and No. 5 (Measurement of gas); and BMPs (Appendix G).

Pipeline locations would be restricted to existing disturbance or the least intrusive disturbance.

The BLM would require operators to utilize wildlife mitigation and BMPs on all gas compressors for noise control (Appendix G and Appendix L.1). Compression facilities requiring more than 1/10 acre (total surface disturbance) would not be allowed on BLM land. Pumping units would be allowed, provided all noise producing mechanisms could

be mitigated to acceptable levels for wildlife considerations (Appendix L.1). Fencing, meter/well sheds, risers, well head equipment and water disposal pits would be allowed.

Water disposal would follow current regulations (43 CFR 3164.1 Onshore Oil and Gas Order No. 7 (Disposal of produced water)) and standard operating procedures. Water disposal pits would be sized according to water production with sloped berms into the pit. All containment systems would require wildlife escape ramps where necessary. For wells in the Monument, only two trips per month would be authorized to transport water off site. Exceptions would be considered on a case-by-case basis. The operator would have the option to dispose of the water via a pipeline to an approved facility, disposal pits including tanks or in an approved water disposal well if these other options are not viable.

Vehicle activity would be restricted to designated roads. Exceptions would be authorized on a case-by-case basis dependent upon the degree of data needed to identify the resource and the operator's ability to mitigate surface disturbance.

Reclamation – Reclamation efforts would follow standard operating procedures. When reclamation activities could cause more surface disturbance and natural reclamation is possible, disturbed surfaces would be allowed to reclaim naturally. The reclamation standards would minimize erosion and establish native vegetation.

Alternative D

Seismic – Only helicopter-supported seismic activities would be allowed in specific areas. Gravitation methods would be allowed on designated roads. All seismic activities would be subject to the wildlife mitigation measures discussed earlier in this chapter.

Drilling Operations – The BLM would be consistent with current state spacing requirements and current Board Orders for the Leroy and Sawtooth Mountain Gas Fields. Currently, one well is allowed per half section within the Leroy Gas Field and one well per section is allowed within the Sawtooth Mountain Gas Field. Each field contains multiple exceptions for additional wells to be drilled per half section/sections or location exceptions.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), API recommended practices and standard operating procedures, including surface operating standards for natural gas exploration and development (BLM and FS 1989, referred to as the “Gold Book”).

Only the minimal amount of surface disturbance would be permitted for drilling and production phases. The disturbed

area would be confined to an acceptable (safe) area/space based on the type of operation. The goals would be to achieve a desired effect on the land with minimum disturbance by using low impact drilling technology, developing multiple wells from one location or staying away from trouble or problem areas. This would include the access to a drilling site. The goals would be to reduce impacts, avoiding areas that could be subject to high impacts, and locating the operation away from sensitive areas.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security) and No. 5 (Measurement of gas); and BMPs (Appendix G).

Pipeline placement and construction would be restricted to existing disturbance or access roads.

The BLM would require operators to utilize wildlife mitigation and BMPs on all gas compressors for noise control (Appendix G and Appendix L.1). Compression facilities requiring more than 1/10 acre (total surface disturbance) would not be allowed on BLM land. Pumping units would be allowed, provided all noise producing mechanisms could be mitigated to acceptable levels for wildlife considerations (Appendix L.1). Fencing, meter/well sheds, risers, well head equipment and water disposal pits would be allowed.

Water disposal would follow current regulations and standard operating procedures (43 CFR 3164.1 Onshore Oil and Gas Order No. 7 (Disposal of produced water)). Water disposal pits would be sized according to water production with no berms into the pit (vertical sides) reducing surface disturbance. All containment systems would require wildlife escape ramps. For each well there would be a limit of no more than five barrels of water per day. For wells in the Monument, no water would be transported via tanker. The operator would have the option to dispose of the water via a pipeline to an approved facility, disposal pits including tanks, or in an approved water disposal well if these other options are not viable.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits.

Reclamation – The reclamation standards would attempt to recapture an area's pre-disturbance appearance. When the disturbance exceeds 1/10 acre, the area would be recontoured and revegetated.

Alternative E

Seismic – Only helicopter-supported seismic activities would be allowed in specific areas. Gravitation methods would be allowed on designated roads. All seismic activities would be subject to the wildlife mitigation measures discussed earlier in this chapter.

Drilling Operations – The BLM would reduce spacing in specific areas where necessary from two wells per section to one well per section. Changes, exceptions or modifications would be allowed.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), API recommended practices and standard operating procedures including surface operating standards for natural gas exploration and development (BLM and FS 1989, referred to as the "Gold Book").

Only the minimal amount of surface disturbance would be permitted for drilling and production phases. The disturbed area would be confined to an acceptable (safe) area/space based on the type of operation. The goals would be to achieve a desired effect on the land with minimum disturbance by using low impact drilling technology, developing multiple wells from one location or staying away from trouble or problem areas. This would include the access to a drilling site. The goals would be to reduce impacts, avoiding areas that could be subject to high impacts and locating the operation away from sensitive areas.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security), No. 5 (Measurement of gas), and No. 7 (Disposal of produced water); and BMPs (Appendix G).

Pipeline placement and construction would be restricted to existing disturbance or access roads.

The BLM would require operators to utilize Best Available Control Technology (BACT) on all gas compressors for nitrogen oxide emissions. The BLM would also require operators to utilize wildlife mitigation and BMPs on all gas compressors for noise control (Appendix G and Appendix L.1). Compression facilities requiring more than 1/10 acre (total surface disturbance) would not be allowed on BLM land. Pumping units would be allowed, provided all noise producing mechanisms could be mitigated to acceptable

levels for wildlife considerations (Appendix L.1). Fencing, meter/well sheds, risers, well head equipment and water disposal pits would be allowed.

Water disposal pits would be sized according to water production with no berms into the pit (vertical sides). All containment systems would require wildlife escape ramps. For each well there would be a limit of no more than five barrels of water per day. For wells in the Monument, no water would be transported via tanker. The operator would have the option to dispose of the water via pipeline, disposal pits including tanks, or in a water disposal well if these other options are not viable.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits.

Reclamation – The reclamation standards would attempt to recapture an area's pre-disturbance appearance. When the disturbance exceeds 1/10 acre, the area would be recontoured and revegetated.

Alternative F (Preferred Alternative)

Seismic – Vehicle activity would be restricted to designated roads. Exceptions would be authorized on a case-by-case basis dependent upon the degree of data needed to identify the resource and the operator's ability to mitigate surface disturbance.

Surface blasting would be allowed on a case-by-case basis, provided the blasts would not interfere with the proper care and management of the objects protected by the Monument Proclamation. Sensitive areas would require helicopter support.

Drilling Operations – Spacing would remain consistent with state spacing requirements and current Board Orders for the Leroy and Sawtooth Mountain Gas Fields. Proposals for increased well densities would be allowed up to one well site per quarter section, subject to siting criteria (i.e., visual resources, sensitive wildlife species and slope/soil concerns). Any more than one well per quarter section would be directionally drilled from an existing active well location in the quarter section.

Drilling operations would follow current regulations, including 43 CFR 3164.1 Onshore Oil and Gas Order No. 2 (Drilling operations), API recommended practices and standard operating procedures including surface operating standards for natural gas exploration and development (BLM and FS 1989, referred to as the "Gold Book").

Only the minimal amount of surface disturbance would be permitted for drilling and production phases. The disturbed

area would be confined to an acceptable (safe) area/space based on the type of operation. The objectives would be to achieve a desired effect on the land with minimum disturbance by using low impact drilling technology, developing multiple wells from one location or staying away from trouble or problem areas. This would include the access to a drilling site. The objectives would be to reduce impacts, avoiding areas that could be subject to high impacts, and locating the operation away from sensitive areas.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site visits.

Production Facilities and Equipment – Production facilities and equipment would be required to follow standard operating procedures; 43 CFR 3164.1 Onshore Oil and Gas Order No. 3 (Site security), No. 5 (Measurement of gas), and No. 7 (Disposal of produced water); and BMPs (Appendix G).

Pipeline placement and construction would be restricted to existing disturbance or the least intrusive disturbance (existing roads).

The BLM would require operators to utilize wildlife mitigation and BMPs on all gas compressors for noise control (Appendix G and Appendix L.1). Large gas compressors or pumping units (long-term noise producers) should be located outside the Monument, but if they must be located within the Monument, BMPs would be followed (Appendix G).

Gas compressors, pumping units and production infrastructure would be located where they minimize noise and visual impacts and comply with VRM objectives established for the area. The VRM objectives provide standards for the design and development of projects.

Fencing, meter/well sheds, risers, well head equipment, water disposal pits and netting would be allowed.

Water disposal pits would be sized according to water production with berms into the pit. All containment systems would require wildlife escape ramps and/or netting where necessary. For wells in the Monument, only two trips per month would be authorized to transport water off site. Exceptions would be considered on a case-by-case basis. The operator would have the option to dispose of the water via pipeline to an approved facility, disposal pits including tanks, or in an approved water disposal well if these other options are not viable.

Travel on identified designated roads would be restricted to the minimal vehicle size and type needed for the job. Due to resource issues, timing restrictions may be applied to site

visits. For construction and heavy trucks related to production, this alternative would restrict equipment that exceeds 49db from being within 2 miles of sage-grouse leks between 4:00 a.m. and 8:00 a.m. and from 7:00 p.m. to 10:00 p.m. between March 1 and June 15.

Reclamation – Reclamation efforts would follow BMPs and standard operating procedures (Appendix G). In some areas, disturbed surfaces (i.e., current wells with final abandonment notices with less than 100% reclamation) would be allowed to reclaim naturally. The intent of the reclamation standards would be to minimize erosion and establish native vegetation.

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Alternative II Preferred Alternative

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Access and Transportation

The alternatives in this section address the transportation system, including access to and within the Monument and the use of backcountry airstrips by recreationists and commercial users.

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Access

The BLM's goal is to manage legal and physical access to and within the Monument to provide opportunities for diverse activities.

Alternative A (Current Management)

The BLM would attempt to acquire public access easements with willing landowners for administrative and public use. The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to improve recreation access. This may involve participation in block management or developing access agreements with willing private landowners.

New resource roads for natural gas operations would be open to public access.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Access would be considered on a case-by-case basis by the Monument manager.

Alternative B

The BLM would attempt to acquire public access easements with willing landowners where no legal public access exists to or within the Monument or where additional access is needed to meet management objectives (Map D). The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to improve recreation access. This may involve participation in block management or developing access agreements with willing private landowners.

The BLM would coordinate with the CMR National Wildlife Refuge to improve recreation access to the east side of the Monument from the James Kipp Recreation Area. The BLM would also coordinate with Blaine County and the Fort Belknap Community Council to improve recreation access across the Cow Island and Timber Ridge roads in the northeast area of the Monument.

New resource roads for natural gas operations would be open to public access.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager.

Alternative C

The BLM would attempt to acquire public access easements with willing landowners where no legal public access exists to or within the Monument (Map D). The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to improve recreation access. This may involve participation in block management or developing access agreements with willing private landowners.

The BLM would coordinate with the CMR National Wildlife Refuge to improve recreation access to the east side of the Monument from the James Kipp Recreation Area. The BLM would also coordinate with Blaine County and the Fort Belknap Community Council to improve recreation access across the Cow Island and Timber Ridge roads in the northeast area of the Monument.

The BLM would restrict general public use of new resource roads to natural gas operations. These determinations about public access to specified areas via such roads would be based on resource conditions and made in site-specific environmental assessments. No additional road access would be granted to the public in the Ervin Ridge WSA.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager.

Alternative D

The BLM would not attempt to acquire new or additional public access. The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to maintain current recreation access.

On new resource roads to natural gas operations, the BLM would restrict public access to all sensitive areas. The public use and permanent status of new resource roads would be addressed in a site-specific environmental assessment.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager. The BLM could designate specific closed roads for use by individuals with disabilities, based on demand or on a case-by-case basis.

Alternative E

The BLM would not attempt to acquire new or additional public access. The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to maintain current recreation access.

New resource roads for natural gas operations would be closed to public access.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager. The BLM could designate specific closed roads for use by individuals with disabilities, based on demand or on a case-by-case basis.

Alternative F (Preferred Alternative)

The BLM would attempt to acquire public access easements with willing landowners where no legal public access exists to or within the Monument, or where additional public access is needed to meet management objectives, including dispersed recreation use (Map D). The BLM would consider building or rerouting roads as necessary for additional public access to large blocks of BLM land. The BLM would cooperate with Montana Fish, Wildlife & Parks and private landowners to improve recreation access. This may involve participation in block management programs or developing access agreements with willing private landowners.

The BLM would coordinate with the CMR National Wildlife Refuge to improve recreation access to the east side of the Monument from the James Kipp Recreation Area. The BLM would also coordinate with Blaine County and the Fort Belknap Community Council to improve recreation access across the Cow Island and Timber Ridge roads in the northeast area of the Monument.

New resource roads to natural gas operations would be closed for public access, unless shown to meet management objectives through a site-specific environmental assessment.

Individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager. If the need arises, the BLM could identify specific designated closed roads as access for individuals with disabilities.

BLM Road System

The BLM's goal is to provide access to state and federal land and reasonable access for private landowners while protecting the features of the Monument. This includes access for administrative needs and authorized uses of industry and government agencies.

The BLM's goal is to manage legal and physical access to and within the Monument to provide opportunities for diverse recreation activities (motorized and non-motorized) while considering the surrounding regional recreation opportunities in north-central Montana. The Monument is a relatively small but significant part of this region and cannot provide opportunities for all recreational activities on all BLM land while protecting the objects for which it was designated.

Public use of private roads that provide access to BLM land in the Monument must be negotiated with the individual landowners. Seven road segments which cross state land are currently open for public travel (Chapter 3, Montana DNRC Roads (state land)). All other road segments which cross state land, unless covered by a public access easement (there are five of these), are currently closed to motorized travel.

A road is a linear route segment that can be created by the passage of vehicles (two-track); constructed; improved; or maintained for motorized travel. The following specifications were used to determine which routes would be inventoried for the Monument transportation plan database:

Motorized travel is not considered cross-country (off road) on BLM land when:

- The motorized vehicle uses constructed roads that are maintained by the BLM. Constructed roads are often characterized with cut and fill slopes.
- The motorized vehicle use is clearly evident two-track routes with regular travel and continuous passage of motorized vehicles over a period of years. A two-track is where perennial vegetation is devoid or scarce, or where wheel tracks are continuous depressions in the soil yet evident to the casual observer and are vegetated.

BLM roads are classified into three categories (collector, local and resource roads) and five maintenance levels. The transportation alternatives are based on these BLM classifications and maintenance levels as described in Tables 2.22 and 2.23.

A map showing the transportation system under each alternative is available on the BLM website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm.

Table 2.22 BLM Road Classifications	
Collector Roads	These Bureau roads normally provide primary access to large blocks of land, and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic of all the roads in the Bureau road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the Bureau. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures.
Local Roads	These Bureau roads normally serve a smaller area than collectors, and connect to collectors or a public road system. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by effect of terrain, may be single-lane roads with turnouts. Environmental impacts are reduced as steeper grades, sharper curves, and lower design speeds than would be permissible on collector roads are allowable.
Resource Roads	These Bureau roads normally are spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing Bureau costs, with minimal consideration for user cost, comfort, or travel time.

Table 2.23 BLM Road Maintenance Levels	
Maintenance Level 1	This level is assigned to roads where minimum maintenance is required to protect adjacent lands and resource values. These roads are no longer needed and are closed to traffic. The objective is to remove these roads from the transportation system.
Maintenance Level 2	This level is assigned to roads where the management objectives require the road to be opened for limited administrative traffic. Typically, these roads are passable by high-clearance vehicles.
Maintenance Level 3	This level is assigned to roads where management objectives require the road to be open seasonally or year-round for commercial, recreation, or high volume administrative access. Typically, these roads are natural or aggregate surfaced, but may include low use bituminous surfaced roads. These roads have defined cross sections with drainage structures (e.g., rolling dips, culverts, or ditches). These roads may be negotiated by passenger cars traveling at prudent speeds. User comfort and convenience are not considered a high priority.
Maintenance Level 4	This level is assigned to roads where management objectives require the road to be open all year (except may be closed or have limited access due to snow conditions) and to connect major administrative features (recreation sites, local road systems, administrative sites, etc.) to county, state, or federal roads. Typically, these roads are single or double lane, aggregate or bituminous surface, with a higher volume of commercial and recreational traffic than administrative traffic.
Maintenance Level 5	This level is assigned to roads where management objectives require the road to be open all year and are the highest traffic volume roads of the transportation system.

Alternative A (Current Management)

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner, administrative, and public travel.

All existing BLM roads would remain open, unless previously restricted through the West HiLine RMP, the Judith-Valley-Phillips RMP or completed watershed plans.

Existing roads would remain open to all forms of motorized and mechanized use.

Road System Criteria – Existing roads would be designated open yearlong, unless they were previously designated open seasonally or closed under a resource management plan or watershed plan (Table 2.24).

Table 2.24 BLM Roads Open Yearlong, Seasonally, or Closed Alternative A (Current Management)	
Designation	Road Miles
Open Yearlong	506
Open Seasonally	73
Closed	15
Total	594

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and one of five maintenance levels that reflect the appropriate management objectives (Table 2.25). The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

The Cow Island and Knox Ridge roads would remain classified as collector roads. The Bullwhacker, Lower Two Calf, Middle Two Calf and Timber Ridge roads would remain classified as local roads. All other roads would be classified as resource roads.

The Cow Island road would remain at a Level 4 maintenance category. The Knox Ridge, Bullwhacker, Lower Two Calf, Middle Two Calf, Timber Ridge, Butch Camp, DeWeese, Heller Bottom, James Kipp Recreation Area, Spencer Cow Camp, Wood Bottom, Woodhawk Bottom, and Woodhawk Trail roads would remain at a Level 3 maintenance category. All other roads designated as open would remain at a Level 2 maintenance category.

Exceptions for Travel Off Road and on Closed Roads – Emergency travel off road and on closed roads would be allowed for any military, fire, search and rescue or law enforcement vehicle.

Administrative use off road and on closed roads would be allowed for federal, state and county agencies, lessees and permittees. Administrative use would remain limited to those activities necessary to administer a permit.

Some examples of administrative use include:

- Gas or electric utilities monitoring a utility corridor for safety conditions or normal maintenance.
- Livestock permittees building or maintaining fences, delivering salt or supplements, moving livestock, or checking wells or pipelines as part of the implementation of a grazing permit or lease.
- Agency personnel involved in prescribed fire, noxious weed control, surveying and monitoring.
- Where possible, agency personnel performing administrative functions would locate a sign or notice in the area they are working to identify for the public the function they are authorized to perform.

Non-motorized/non-mechanized game carts would be allowed off road, except in the WSAs, for the retrieval of a tagged big game animal. In the WSAs, game carts would not be allowed off road.

Motorized or mechanized vehicles may not pull off existing roads for camping.

Signing – Existing directional signs would be maintained. New signs would be added where needed.

Table 2.25 Road Classification and Maintenance Level — Alternative A (Current Management)						
Road Classification	Miles	Maintenance Level (miles)				
		1	2	3	4	5
Collector	18	0	0	8	10	0
Local	31	0	0	31	0	0
Resource	545	15	505	25	0	0
Total	594	15	505	64	10	0

Table 2.26 Factors Applied to Existing Roads to Determine if Open Yearlong or Seasonally						
Road System Criteria	Alternative A Current Mgmt	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
Vehicle Ways in WSAs	Open.		Vehicle ways that have reclaimed naturally would be closed.	Vehicle ways would be closed.		Vehicle ways that have reclaimed naturally would be closed.
Greater Sage-Grouse	Open.	For resource roads 1/4 mile from an active lek, a seasonal closure would be implemented from March 1 to June 15.	For resource roads 1/4 mile from an active lek, a seasonal closure would be implemented from March 1 to June 15. For resource roads that are located within crucial winter habitat, a seasonal closure would be implemented from December 1 to March 31.	For some resource roads that are 2 miles from an active lek, a seasonal closure would be implemented from March 1 to June 15. For some resource roads that are located within crucial winter habitat, a seasonal closure would be implemented from December 1 to March 31.	For resource roads that are 1/4 mile from an active lek, a yearlong closure would be implemented. For resource roads that are located within crucial winter habitat, a seasonal closure would be implemented from December 1 to March 31.	For some resource roads that are 1/4 mile from an active lek, a seasonal closure would be implemented from March 1 to June 15. For some resource roads that are located within crucial winter habitat, a seasonal closure would be implemented from December 1 to March 31.
Bighorn Sheep Lambing Areas	Open.	For some resource roads that are located within bighorn sheep lambing areas, a seasonal closure would be implemented from April 1 to June 15 on a case-by-case basis.	For some resource roads that are located within bighorn sheep lambing areas, a seasonal closure would be implemented from April 1 to June 15 on a case-by-case basis.	For some resource and local roads that are located within bighorn sheep lambing areas, a seasonal closure would be implemented from April 1 to June 15 on a case-by-case basis.		For some resource roads that are located within bighorn sheep lambing areas, a seasonal closure would be implemented from April 1 to June 15.
Big Game Winter Range	Open.		For some resource roads that are located within big game winter range, a seasonal closure would be implemented from December 1 to March 31 on a case-by-case basis.	For some resource roads that are located within big game winter range, a seasonal closure would be implemented from December 1 to May 15.		For some resource roads that are located within big game winter range, a seasonal closure would be implemented from December 1 to March 31 on a case-by-case basis.

Road System Criteria	Alternative A Current Mgmt	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
Wildlife Habitat Security and Game Retrieval	Some roads would have a seasonal road closure during the big game hunting season, but would be available for game retrieval.		Some resource roads could be closed from September 1 to November 30 to provide wildlife habitat security during the fall hunting season. Game retrieval would be allowed from 10:00 a.m. to 2:00 p.m. and for 3 hrs. after sunset.	Some resource roads could be closed from September 1 to November 30 to provide wildlife habitat security during the fall hunting season. Game retrieval would be allowed from 10:00 a.m. to 2:00 p.m.	Some resource roads could be closed from September 1 to November 30 to provide wildlife habitat security during the fall hunting season.	Some resource roads could be closed from September 1 to November 30 to provide wildlife habitat security during the fall hunting season. Game retrieval would be allowed from 10:00 a.m. to 2:00 p.m.
Designated Sensitive Species	Open.	A seasonal closure would be implemented on some resource roads that are 1/4 mile from raptor nests. The season would be determined based on the species of raptor.	Some resource roads could be closed from September 1 to November 30 to provide wildlife habitat security during the fall hunting season. Game retrieval would be allowed from 10:00 a.m. to 2:00 p.m. and for 3 hrs. after sunset.	A seasonal closure would be implemented on some resource and local roads that are 1/4 mile from raptor nests. The season would be determined based on the species of raptor.	A seasonal closure would be implemented on some resource, local and collector roads that are 1/4 mile from raptor nests. The season would be determined based on the species of raptor.	A seasonal closure would be implemented on some resource roads that are 1/4 mile from raptor nests that have been active for the last 5 nesting seasons. The season would be determined based on the species of raptor.
Bald Eagle	Open.	A seasonal closure (February 1 to May 31) would be implemented on some resource roads that are 1/2 mile from active bald eagle nests.				A seasonal closure would be implemented from February 1 to May 31 on some resource roads that are 1/2 mile from active bald eagle nests.
Invasive Weeds	Open.		Temporary resource road closures would be implemented in highly infested areas.	Temporary resource and local road closures would be implemented in highly infested areas.		Temporary resource road closures would be implemented in highly infested areas.

Alternative B

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. These roads would also be open to public travel, unless closed to meet Monument objectives.

The BLM’s objectives would be to evaluate roads based on erosion, identified wildlife species habitat and the need for the road (type of use and need for access). This includes closing or rerouting roads that impact wildlife or soils (e.g., highly erosive soils, weeds). The BLM reserves the option to build new roads if necessary to access blocks of BLM land.

Roads that are open year long or seasonally would be open to all forms of motorized and mechanized use. Some closed roads could be designated as mechanized (mountain bike) trails through site-specific planning and environmental review.

Road System Criteria – Along with the objectives discussed above, the factors used to identify the overall road system under Alternative B are listed in Table 2.26. These factors were applied to the existing roads to determine the roads that would be open yearlong or seasonally in the Monument (Table 2.27). The road system could be modified if vehicle use patterns or resource conditions change. Modifications to the road system would be based on the management guidance under this alternative and changes would be addressed through a travel plan with public participation.

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and a maintenance level that reflects the appropriate management objectives (Table 2.28). The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

The BLM would install cattleguards as needed or where appropriate on roads that are designated open yearlong.

Closed roads would be reclaimed naturally.

Table 2.27 BLM Roads Open Yearlong, Seasonally, or Closed Alternative B	
Designation	Road Miles
Open Yearlong	444
Open Seasonally	95
Closed	55
Total	594

Exceptions for Travel Off Road and on Closed Roads – Travel off road and on closed roads would be allowed for any military, fire, search and rescue or law enforcement emergency purposes.

Administrative use off road and on closed roads for BLM, other federal, state and county agencies, lessees and permittees would be allowed. Administrative use would remain limited to those activities necessary to administer a permit. Some examples of administrative use are discussed in Alternative A.

Big game retrieval would be allowed on some identified closed roads (administrative roads that may be closed to the public or roads that are seasonally closed). Non-motorized/ non-mechanized game carts would be allowed off road, except in the WSAs, for the retrieval of a tagged big game animal. In the WSAs, game carts would not be allowed off road.

Motorized or mechanized vehicles may pull off designated open roads no more than 300 feet for camping and must use the most direct route to the site to minimize resource damage. Site selection must be completed by non-motorized or non-mechanized means.

Table 2.28 Road Classification and Maintenance Level – Alternative B						
Road Classification	Miles	Maintenance Level (miles)				
		1	2	3	4	5
Collector	18	0	0	8	10	0
Local	31	0	0	31	0	0
Resource	545	55	465	25	0	0
Total	594	55	465	64	10	0

Signing – Existing traffic control and directional signs would be maintained. New signs would be added where monitoring indicates a need to prevent resource damage, safety or visitor confusion. Roads open to motorized and mechanized travel would be signed. Closed roads would not be signed unless necessary to prevent resource damage.

Alternative C

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. These roads would also be open to public travel, unless closed to meet Monument objectives.

The BLM’s objectives would be to retain roads to access recreation sites, gas well sites, major range improvement projects, backcountry airstrips and access to areas commonly used for dispersed recreation (geological areas and trailheads). The BLM would reduce the number of roads in crucial wildlife habitat, in areas considered unsuitable due to erosion and slope, and if unique geologic formations, cultural sites or riparian areas are being degraded. The BLM reserves the option to build new roads if necessary to access blocks of BLM land.

Roads that are open yearlong or seasonally would be open to all forms of motorized and mechanized use. Some closed roads could be designated as mechanized (mountain bike) trails through site-specific planning and environmental review.

Road System Criteria – Along with the objectives discussed above, the factors used to identify the overall road system under Alternative C are listed in Table 2.26. These factors were applied to the existing roads to determine the roads that would be open yearlong or seasonally in the Monument (Table 2.29). The road system could be modified if vehicle use patterns or resource conditions change. Modifications to the road system would be based on the management guidance under this alternative and changes would be addressed through a travel plan with public participation.

Table 2.29 BLM Roads Open Yearlong, Seasonally, or Closed Alternative C	
<i>Designation</i>	<i>Road Miles</i>
Open Yearlong	407
Open Seasonally	94
Closed	93
Total	594

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and a maintenance level that reflects the appropriate management objectives (Table 2.30). The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

The BLM would install cattleguards as needed on roads that are designated open year long.

Most closed roads would be reclaimed naturally. On selected sections of the closed road, reclamation may include ripping, scarifying and seeding with a native seed mix or a mix approved by the Monument manager.

Exceptions for Travel Off Road and on Closed Roads – Travel off road and on closed roads would be allowed for any military, fire, search and rescue, or law enforcement emergency purposes.

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. Permittees and lessees would be allowed to drive off road and on closed roads to administer their livestock grazing permits. Some examples of administrative use are discussed in Alternative A.

Big game retrieval would be allowed on identified closed roads from 10 a.m. to 2 p.m. and for 3 hours after the legal hunting time. Non-motorized/non-mechanized game carts would be allowed off road, except in the WSAs, for the

Table 2.30 Road Classification and Maintenance Level – Alternative C						
<i>Road Classification</i>	<i>Miles</i>	<i>Maintenance Level (miles)</i>				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Collector	18	0	0	8	10	0
Local	31	0	0	31	0	0
Resource	545	93	427	25	0	0
Total	594	93	427	64	10	0

retrieval of a tagged big game animal. In the WSAs, game carts would not be allowed off road.

Motorized or mechanized vehicles may pull off designated open roads no more than 150 feet for camping and must use the most direct route to minimize resource damage. Site selection must be completed by non-motorized or non-mechanized means.

Signing – Existing traffic control and directional signs would be maintained. New signs would be added where monitoring indicates a need to prevent resource damage, safety or visitor confusion. Roads open to motorized and mechanized travel would be signed. Closed roads would not be signed, unless necessary to prevent resource damage.

Alternative D

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. These roads would also be open to public travel, unless closed to meet Monument objectives.

The BLM’s objectives would be to retain roads if they serve a specific purpose (accessing recreation sites, gas well sites and major range improvement projects). Most roads that are not collector or local would be closed as would parallel roads. Roads along the middle of ridges would remain open, but most roads along the edge of rims and spur roads would be closed. The BLM reserves the option to build new roads if necessary to access blocks of BLM land.

Some roads could be limited to specific motorized and/or mechanized use through site-specific planning and environmental review.

Road System Criteria – Along with the objectives discussed above, the factors used to identify the overall road system under Alternative D are listed in Table 2.26. These factors were applied to the existing roads to determine the roads that would be open yearlong or seasonally in the Monument (Table 2.31). The road system could be modi-

fied if vehicle use patterns or resource conditions change. Modifications to the road system would be based on the management guidance under this alternative and changes would be addressed through a travel plan with public participation.

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and a maintenance level that reflects the appropriate management objectives (Table 2.32). The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

Table 2.31 BLM Roads Open Yearlong, Seasonally, or Closed Alternative D	
<i>Designation</i>	<i>Road Miles</i>
Open Yearlong	287
Open Seasonally	43
Closed	264
Total	594

Closed roads would be reclaimed with planned/designed reclamation. On selected sections of the closed road, reclamation may include ripping, scarifying and seeding with a native seed mix or a mix approved by the Monument manager.

Exceptions for Travel Off Road and on Closed Roads – Travel off road and on closed roads would be allowed for any military, fire, search and rescue, or law enforcement emergency purposes.

The BLM, other federal, state and county agencies would be allowed off road and on closed roads for administrative uses. Seasonal use provisions for travel off road and on closed roads would be allowed for lessees and permittees as needed to administer the lease, with the development and use of an identification system. Some examples of administrative use are discussed in Alternative A.

Table 2.32 Road Classification and Maintenance Level – Alternative D						
		<i>Maintenance Level (miles)</i>				
<i>Road Classification</i>	<i>Miles</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Collector	18	0	0	8	10	0
Local	31	0	0	31	0	0
Resource	545	264	256	25	0	0
Total	594	264	256	64	10	0

Big game retrieval by motorized vehicles would be allowed from 10 a.m. to 2 p.m. on specific designated closed roads (roads normally open only for administrative use). Non-motorized/non-mechanized game carts would be allowed off road, except in the WSAs, for the retrieval of a tagged big game animal. In the WSAs, game carts would not be allowed off road.

Motorized or mechanized vehicles may pull off designated roads no more than 10 feet for camping.

Signing – Existing traffic control and directional signs would be maintained. New signs would be added where monitoring indicates a need to prevent resource damage, safety or visitor confusion. Roads open or closed to motorized and mechanized travel would be signed.

Alternative E

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. These roads would also be open to public travel, unless closed to meet Monument objectives.

The BLM’s objectives would be to retain collector and local roads, but most resource roads would be closed. However, resource roads currently maintained would remain open.

Some roads could be limited to specific motorized and/or mechanized use through site-specific planning and environmental review.

Road System Criteria – Along with the objectives discussed above, the factors used to identify the overall road system under Alternative E are listed in Table 2.26. These factors were applied to the existing roads to determine the roads that would be open yearlong or seasonally in the Monument (Table 2.33).

Table 2.33 BLM Roads Open Yearlong, Seasonally, or Closed Alternative E	
<i>Designation</i>	<i>Road Miles</i>
Open Yearlong	101
Open Seasonally	4
Closed	489
Total	594

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and a maintenance level that reflects the appropriate management objectives (Table 2.34). The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

Closed roads would be reclaimed with planned/designed reclamation. On selected sections of the closed roads, reclamation may include ripping, scarifying and seeding with a native seed mix or a mix approved by the Monument manager.

Exceptions for Travel Off Road and on Closed Roads – Travel off road and on closed roads would be allowed for any military, fire, search and rescue, or law enforcement emergency purposes.

Administrative use for BLM, other federal, state and county agencies would be allowed on closed roads. Off-road travel would not be allowed. The BLM would provide permission on a case-by-case basis for administrative use by lessees and permittees. Some examples of administrative use are discussed in Alternative A.

Big game retrieval by motorized vehicles would not be allowed on closed roads. Non-motorized/non-mechanized game carts would be allowed on closed roads to retrieve a tagged big game animal. Game carts would not be allowed off road.

Table 2.34 Road Classification and Maintenance Level – Alternative E						
<i>Road Classification</i>	<i>Miles</i>	<i>Maintenance Level (miles)</i>				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Collector	18	0	0	8	10	0
Local	31	0	0	31	0	0
Resource	545	489	31	25	0	0
Total	594	489	31	64	10	0

Motorized or mechanized vehicles could not pull off designated roads for camping.

Signing – New or existing traffic control and directional signs would be maintained. No open or closed road signs would be allowed.

Alternative F (Preferred Alternative)

All BLM roads providing motorized access to the boundary of private or state land would remain open for private landowner and administrative travel. These roads would also be open for public travel, if shown to meet Monument objectives.

The BLM’s objectives would be to retain roads to access recreation sites, gas well sites, major range improvement projects, backcountry airstrips and access to areas commonly used for dispersed recreation (geological areas and trailheads). The BLM would reduce the number of parallel and spur roads and roads in crucial wildlife habitat, in areas considered unsuitable due to erosion and slope, and if unique geologic formations, cultural sites or riparian areas are being degraded. The BLM reserves the option to build new roads if necessary to access blocks of BLM land.

Roads that are open year long or seasonally would be open to all forms of motorized and mechanized use consistent with management objectives. Some closed roads could be designated as mechanized (e.g., mountain bike) trails through site-specific planning and environmental review.

Road System Criteria – Along with the objectives discussed above, the factors used to identify the overall road system under Alternative F are listed in Table 2.26. These factors were used to determine which roads in the Monument would be open yearlong or seasonally (Map 3 and Table 2.35). The road system could be modified if vehicle use patterns or resource conditions change. Modifications to the road system would be based on the management guidance under this alternative and changes would be addressed through a travel plan with public participation.

Table 2.35 BLM Roads Open Yearlong, Seasonally, or Closed Alternative F (Preferred Alternative)	
Designation	Road Miles
Open Yearlong	207
Open Seasonally	171
Closed	216
Total	594

Road Classification and Maintenance – Each road segment would be assigned to one of three classifications and a maintenance level that reflects the appropriate management objectives (Table 2.36). The classification or maintenance level could be changed if vehicle use patterns change or if resource damage occurs.

The Cow Island, Knox Ridge, Wood (Muir) Bottom and James Kipp Recreation Area roads would be classified as collector roads. The Timber Ridge, Bullwhacker, Middle Two Calf, Lower Two Calf, Woodhawk Bottom and Woodhawk Trail roads would be classified as local roads. All other roads would be classified as resource roads.

The Cow Island, James Kipp Recreation Area and Wood (Muir) Bottom roads would be assigned to a Level 4 maintenance category. The Knox Ridge, Timber Ridge, Bullwhacker, Middle Two Calf, Lower Two Calf, Spencer Cow Camp and Woodhawk Trail roads would be assigned to a Level 3 maintenance category. The remaining open roads would fall under the Level 2 maintenance category.

The BLM would install cattleguards as needed or where appropriate on roads that are designated open yearlong.

Most closed roads would be reclaimed naturally. On selected sections of closed roads, reclamation may include ripping, scarifying and seeding with a native seed mix or a mix approved by the Monument manager.

Table 2.36 Road Classification and Maintenance Level – Alternative F (Preferred Alternative)						
Road Classification	Miles	Maintenance Level (miles)				
		1	2	3	4	5
Collector	21	0	0	8	13	0
Local	40	0	4	36	0	0
Resource	533	216	310	7	0	0
Total	594	489	314	51	13	0

Exceptions for Travel Off Road and on Closed Roads –

Travel off road and on closed roads would be allowed for any military, fire, search and rescue, or law enforcement vehicle used for emergency purposes.

Administrative and emergency use would be allowed off road and on closed roads for BLM, other federal, state and county agencies, lessees and permittees. Administrative use would be limited to those activities necessary to administer the permit. Some examples of administrative use are discussed in Alternative A.

Big game retrieval by motorized vehicles would be allowed from 10 a.m. to 2 p.m. on specific designated closed roads (roads that are seasonally closed). Non-motorized/non-mechanized game carts would be allowed off road, except in the WSAs, to retrieve a tagged big game animal. Game carts would not be allowed off road in the WSAs.

Motorized or mechanized vehicles may pull off designated roads no more than 300 feet for camping and must use the most direct route to minimize resource damage. Site selection must be completed by non-motorized or non-mechanized means and camping would be encouraged at previously used sites to reduce the number of new campsites.

In the WSAs, motorized or mechanized vehicles would not be allowed to pull off designated roads for camping. However, parallel camping along roads would be allowed.

Signing – Existing traffic control and directional signs would be maintained. New signs would be added where monitoring indicates a need to enhance safety or prevent resource damage or visitor confusion. Roads open to motorized and mechanized travel would be signed (small road number signs). Closed roads would not be signed unless necessary to prevent resource damage.

Aviation

The BLM's goal is to provide access for diverse recreation opportunities while protecting the features in the Monument.

Alternative A (Current Management)

The 10 existing backcountry airstrips would remain open (Table 2.37).

Commercial aircraft such as planes, helicopters, hot air balloons or ultralights would be allowed to land on the airstrips in the Monument. Commercial use would require prior authorization.

Alternative B

The existing airstrips would remain open (authorized) and additional airstrips could be allowed after environmental review (Table 2.37).

Commercial aircraft (planes, helicopters, hot air balloons, or ultralights) would be allowed to land in the Monument. Commercial use would require prior authorization.

Alternative C

Seven airstrips would remain open (Table 2.37). Three of these airstrips would be restricted seasonally, based on wildlife habitat requirements or values for which the Monument was established. The Cow Creek, Left Coulee, Bullwhacker and Knox Ridge backcountry airstrips would be open yearlong. The Black Butte North and Woodhawk backcountry airstrips would be closed from December 1 to March 31. The Ervin Ridge backcountry airstrip would be closed from December 1 to June 15.

Any commercial aircraft landing in the Monument (planes, helicopters, hot air balloons, or ultralights) would be required to utilize only authorized backcountry airstrips. Seasonal restrictions may apply to the commercial use of airstrips. Commercial use would require prior authorization.

Alternative D

Six airstrips (selected to avoid clusters) would remain open (Table 2.37). Four of these airstrips would be restricted seasonally, based on wildlife habitat requirements or values for which the Monument was established. The Cow Creek and Knox Ridge backcountry airstrips would be open yearlong. The Left Coulee, Bullwhacker and Black Butte North backcountry airstrips would be closed from December 1 to March 31. The Ervin Ridge backcountry airstrip would be closed from December 1 to June 15.

Any commercial aircraft landing in the Monument (planes, helicopters, hot air balloons, or ultralights) would be required to utilize only specific authorized backcountry airstrips. Seasonal restrictions may apply to the commercial use of airstrips. Commercial use would require prior authorization.

Alternative E

No airstrips would remain open (Table 2.37).

No commercial aircraft (planes, helicopters, hot air balloons, or ultralights) would be allowed to land in the Monument.

Alternative F (Preferred Alternative)

Six airstrips (selected to avoid clusters) would remain open (Table 2.37 and Map 3). Four of these airstrips would be restricted seasonally, based on wildlife habitat requirements or values for which the Monument was established. The Cow Creek and Knox Ridge backcountry airstrips would be open yearlong. The Left Coulee, Bullwhacker and Black Butte North backcountry airstrips would be closed from December 1 to March 31. The Ervin Ridge backcountry airstrip would be closed from December 1 to June 15.

The BLM would allow minimal hand maintenance of airstrips without prior approval, but maintenance would be limited to the area previously disturbed. The emphasis would be to keep the airstrips as backcountry airstrips, only suitable for landing aircraft equipped to use primitive airstrips. Mechanized maintenance, improvements, facilities or infrastructure (tie downs, wind socks, airstrip delimiters, etc.) would require prior approval by the authorized officer.

All commercial aircraft landing in the Monument (planes, helicopters, hot air balloons, or ultralights) would be required to utilize specific authorized backcountry airstrips. Seasonal restrictions may apply to the commercial use of these airstrips. Commercial use would require prior authorization.

Alternatives Considered but Not Analyzed in Detail

The following alternatives were considered but eliminated from detailed study because they did not meet the vision, goals and management guidance provided by the Proclamation or were outside of the technical or legal constraints of developing a land use plan for BLM land and resources in the Monument.

Class I Airshed

An alternative to designate and manage the Monument as a Class I airshed was considered but eliminated from detailed study because the State of Montana has delegated responsibility for management of the Clean Air Act, including classification of airsheds. The Monument is within Airshed 9 and is a Class II airshed. The BLM will comply with national and state air quality standards under all alternatives.

Reinventory the Monument Roadless Areas with Wilderness Character (Bullwhacker)

An alternative to reinventory the Bullwhacker area for wilderness characteristics was considered but eliminated from detailed study because a formal wilderness inventory of this Bullwhacker area was completed in 1979 and 1980. The BLM has no information to suggest that this inventory needs revision. The public does have the opportunity to help provide information to the BLM concerning wilderness characteristics and inventory.

Table 2.37 Airstrips Open Yearlong, Seasonally, or Closed (by Alternative)						
Airstrip	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
Black Butte North	Open	Open	Seasonal	Seasonal	Closed	Seasonal
Black Butte South	Open	Open	Closed	Closed	Closed	Closed
Bullwhacker	Open	Open	Open	Seasonal	Closed	Seasonal
Cow Creek	Open	Open	Open	Open	Closed	Open
Ervin Ridge	Open	Open	Seasonal	Seasonal	Closed	Seasonal
Knox Ridge	Open	Open	Open	Open	Closed	Open
Left Coulee	Open	Open	Open	Seasonal	Closed	Seasonal
Log Cabin	Open	Open	Closed	Closed	Closed	Closed
Roadside	Open	Open	Closed	Closed	Closed	Closed
Woodhawk	Open	Open	Seasonal	Closed	Closed	Closed

Livestock Grazing

An alternative to identify lands as not available for livestock grazing was considered but eliminated from detailed study because under the Proclamation, the “[l]aws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.” Guidelines for Livestock Grazing Management practices will be followed to protect rangeland resources and, where necessary, to mitigate conflicts with other Monument uses and values. Administrative actions will be implemented under existing regulations to ensure compliance with existing permit/lease requirements. These actions include monitoring and supervision of grazing use and enforcement in response to unauthorized use.

Oil and Gas

An alternative to prohibit any further oil and gas exploration and development was considered but eliminated from detailed study because the 43 federal oil and gas leases in the Monument are considered to have valid existing rights based upon the Proclamation, wherein it states, “The establishment of this monument is subject to valid existing rights. The Secretary of Interior shall manage development on existing oil and gas leases within the monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation.” Specific management for oil and gas is addressed under the range of alternatives for Natural Gas Exploration and Development consistent with the Proclamation.

Comparison of Alternatives

A summary comparison of all the alternatives discussed in Chapter 2 follows in Table 2.38. The topics are presented in the same order as above, under the four categories of Health of the Land and Fire; Visitor Use, Services and Infrastructure; Natural Gas Exploration and Development; and Access and Transportation.

A summary comparison of the environmental consequences discussed in Chapter 4 also follows in Table 2.39. The summary tables provide a comparative form for defining the differences among the alternatives.

Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Fish and Wildlife - Greater Sage-Grouse Habitat	Maintain and enhance sage-grouse habitat.	Guidance and direction from the Management Plan and Conservation Strategies for Sage-Grouse in Montana – Final.				Mechanical treatment the primary method and prescribed fire a secondary method to remove conifers that encroach on sage-grouse habitat.
	Specify locations for salt and other supplements.	No supplemental feeding, mineral placement or other livestock congregating function in identified active crucial sage-grouse habitat during sensitive seasonal times.				Placement of salt or mineral supplements avoided (or not allowed) near leks during the breeding season (March 1 - June 15). Supplemental winter feeding of livestock avoided, where practical, on sage-grouse winter habitat and around leks.
	Maintain sagebrush stands.	Acres of sagebrush habitat increased through conversion of crested wheatgrass in selected areas in or near nesting habitat, and native sagebrush reseeded in areas that have been disturbed (e.g., wildland fire).				Sage planting promoted, where appropriate. Areas disturbed by treatments reclaimed and/or reseeded when necessary.

**Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
	Adjust livestock grazing densities and/or change season of use (end by Oct. 31).	High livestock densities not allowed in identified active nesting habitat from March 1 to June 15. When conditions are required for sage-grouse security, livestock grazing would not occur in identified active crucial winter habitat.			Livestock grazing not allowed in identified sage-grouse nesting habitat from March 1 to June 15. Livestock grazing not allowed in identified crucial winter habitat from Dec. 1 to March 31.	Concentration of livestock near leks or key sage-grouse habitat discouraged to avoid potential disturbance or displacement of sage-grouse.
Fish and Wildlife - Black-tailed Prairie Dog Towns	Towns smaller than 10 acres not actively managed (Blaine County).	Guidance and direction from the Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana. Regional plans utilized when completed.				
	Towns managed based on values or problems (Fergus and Chouteau Counties)	Towns allowed to expand only to the point they adversely impact other resources or affect Standards for Rangeland Health.				
	Towns maintained at the 1988 level (Phillips County).					
Fish and Wildlife - Mitigation Measures for Surface-Disturbing Activities						
Greater Sage-Grouse						
Lek	No surface disturbance within 500 feet.	No surface disturbance within 1/4 mile.			No surface disturbance within 2 miles.	No surface disturbance within 1/4 mile.
Nesting Area	No surface disturbance within strutting grounds from March 1 to June 30.	No surface disturbance within 2 miles of a lek from March 1 to June 15.			No surface disturbance within 2 miles of a lek.	No surface disturbance within 2 miles of a lek from March 1 to June 15.

Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
<i>Crucial Winter Habitat</i>	No surface disturbance from Dec. 1 to May 15.	No surface disturbance from Dec. 1 to March 31.			No surface disturbance.	No new surface disturbance from Dec. 1 to March 31.
<i>Black-tailed Prairie Dog Towns</i>	No surface disturbance within 1/4 mile of identified essential habitat.	No surface disturbance.	Surface-disturbing activities avoid, or minimize, disturbance.	No surface disturbance within 1/4 mile, if an activity adversely impacts prairie dogs and/or associated species.		No new surface disturbance within 1/4 mile, if an activity adversely impacts prairie dogs and/or associated species.
<i>Designated Sensitive Species</i>	Surface-disturbing activities controlled or excluded within 200 meters of the activity or the activity delayed 60 days within identified crucial habitat or active nests.		Surface-disturbing activities controlled or excluded within identified crucial habitat or within 1/4 mile of active nests.	Surface-disturbing activities controlled or excluded within identified crucial habitat or within 1/4 mile of active nests.	Surface-disturbing activities controlled or excluded within identified crucial habitat or within 1/2 mile of active nests.	Surface-disturbing activities controlled or excluded within 1/4 mile of the activity or the activity delayed 90 days within identified crucial habitat or active nests.
				Surface-disturbing activities controlled or excluded from March 1 to Aug. 1 within 1/2 mile of active nests.		Surface-disturbing activities controlled or excluded from March 1 to Aug. 1 within 1/2 mile of ferruginous hawk nests.
<i>Bald Eagle</i>	Surface disturbance controlled or excluded within 1/4 mile of identified essential habitat.	No surface disturbance within 1 mile of active winter roosting areas from Nov. 15 to Feb. 29, if disturbance could cause an adverse effect.	No surface disturbance within 1/2 mile of a nest that has been active in the last 7 years.	No surface disturbance within 1/2 mile of a nest that has been active in the last 7 years and within riparian area nesting habitat.		No new surface disturbance within 1/2 mile of a nest that has been active in the last 7 years, if disturbance could cause nest abandonment or failure.

**Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
		No surface disturbance within 1 mile of active bald eagle nest sites from Feb. 1 to July 31, if disturbance could cause nest abandonment or failure.				
<i>Big Game Winter Range (Elk, Mule Deer, and Antelope)</i>	No surface disturbance from Dec. 1 to May 15.	No surface disturbance from Dec. 1 to March 31.	No surface disturbance from Dec. 1 to May 15.	No surface disturbance from Dec. 1 to March 31 (timeframe shortened if conditions warrant).		No new surface disturbance from Dec. 1 to March 31.
<i>Bighorn Sheep Distribution</i>	Surface disturbance controlled or excluded within 200 meters of the activity or the activity delayed 60 days.	No surface disturbance from Dec. 1 to March 31.	No surface disturbance from Dec. 1 to March 31.	No surface disturbance.	No surface disturbance.	No new surface disturbance from Dec. 1 to March 31.
<i>Bighorn Sheep Lambing Areas</i>	Surface disturbance controlled or excluded within 200 meters of the activity or the activity delayed 60 days.	No surface disturbance from April 1 to June 15, if activities adversely impact lamb survival.	No surface disturbance from April 1 to June 15, if activities adversely impact lamb survival.	No surface disturbance within a 1-mile line of sight, if activities adversely impact lamb survival.	No surface disturbance from April 1 to June 15, if activities adversely impact lamb survival.	No new surface disturbance from April 1 to June 15, if activities adversely impact lamb survival.
Vegetation	Restore or establish native riparian vegetation.	Activity plan updates emphasize riparian habitat restoration and protection. If the opportunity is available, establish allotments.	Activity plan updates emphasize riparian habitat restoration and protection. If the opportunity is available, establish allotments.	Activity plan updates emphasize riparian habitat restoration and protection. If the opportunity is available, establish allotments.	Activity plan updates emphasize riparian habitat restoration and protection. If the opportunity is available, establish allotments.	Activity plan updates emphasize riparian habitat restoration and protection. If the opportunity is available, establish allotments (e.g., Hay Coulee).

**Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
		Restore priority non-native vegetation sites to a native species community (control highly invasive non-native species).	Restore all non-native vegetation sites to a native species community.			Restore priority non-native vegetation sites to a native species community (control highly invasive non-native species).
		To achieve vegetation goals in an activity plan (watershed plan), livestock grazing strategies used to manage vegetation communities.				
		Rehabilitate surface-disturbed areas with native and non-native grasses, forbs and shrubs.	Rehabilitate surface-disturbed areas with native grasses, forbs and shrubs. Non-native plants used under special circumstances.	Rehabilitate surface-disturbed areas with native and non-native grasses, forbs and shrubs.		Rehabilitate surface-disturbed areas with native grasses, forbs and shrubs. Non-native plants used under special circumstances.
<i>Reclamation</i>	Previously disturbed sites allowed to reclaim naturally.	Reclamation standards to minimize erosion and establish native vegetation. In some areas disturbed surfaces allowed to reclaim naturally.		Reclamation standards based on leaving no trace. Surface recontoured to a natural repose and sites revegetated where disturbance exceeds 1/10 acre.		Reclamation standards to minimize erosion and establish native vegetation. In some areas disturbed surfaces allowed to reclaim naturally.
		Non-functional reservoirs, pits and water developments allowed to reclaim naturally, if feasible.		Non-functional reservoirs, pits and water developments in WSAs, or where there is viewshed infringement, removed and rehabilitated, if feasible.		
For previously disturbed sites a reclamation plan completed as needed.						
Range Improvements						
<i>Barbed Wire and Electric Fences</i>	Standard specifications for fence installation to mitigate risk to wildlife.	Standard specifications with allowances for certain classes or types of livestock. Four-wire fences authorized if the class or kind of livestock necessitates the need.			Standard specifications followed but four-wire fences not allowed.	Standard specifications with allowances for certain classes or types of livestock.

**Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire**

Topic	Alternative A Current Mgmt	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
		Modify existing fences, if creating barriers to wildlife movement. In isolated cases, relocate fences to better fit with topography and management needs.			Modify all existing fences to standard. Relocate fences that do not fit with the landscape.	Four-wire fences authorized if the class or kind of livestock necessitates the need. Modify existing fences, if creating barriers to wildlife movement. In isolated cases, relocate fences to better fit with topography and management needs.
Water Developments	Water developments limited on some terminal ridges.					
Visual Resource Management (VRM)						
VRM Class I	Surface-disturbing activities may require special design to blend with the natural surroundings.	Surface-disturbing activities may require special design to blend with the natural surroundings.	Reduce visual contrast by site selection, reduced disturbance, color, and reclamation.	Surface-disturbing activities may be prohibited in VRM Class I areas.		
VRM Class II, III or IV	Surface-disturbing activities may require special design to blend with the natural surroundings.		Reduce visual contrast by site selection, reduced disturbance, color, and reclamation.	Reduce visual contrast by site selection, reduced disturbance, color, and reclamation.	Surface-disturbing activities may be prohibited in VRM Class II areas.	Reduce visual contrast by site selection, reduced disturbance, color, and reclamation.
VRM Classes	<i>No. Acres</i>	<i>No. Acres</i>	<i>No. Acres</i>	<i>No. Acres</i>	<i>No. Acres</i>	<i>No. Acres</i>
Class I	61,700	111,480	111,480	111,480	111,480	111,480
Class II	118,800	44,520	161,560	263,520	263,520	161,560
Class III	8,200	105,000	101,960	0	0	24,770
Class IV	186,300	114,000	0	0	0	77,190

**Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire**

Topic	Alternative A Current Mgmt	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
Forest Products	Product sales available outside of the WSAs and the UMNWSR. Designate areas for personal use. Limited to dead-and-down material in the UMNWSR.	Product sales associated with other projects/activities and vegetative goals or objectives. Minimal harvest techniques where forest health is in jeopardy. Designate areas for personal use.	Minimal harvest techniques where forest health is in jeopardy. Designate areas for personal use. With a permit, individuals can utilize material from wildland fires.	Minimal harvest techniques where forest health is in jeopardy. Designate areas for personal use. With a permit, individuals can utilize material from wildland fires.	Product sales and incidental personal use prohibited.	Minimal harvest techniques where forest health is in jeopardy. Designate areas for personal use. With a permit, individuals can utilize material from wildland fires.
Rights-of-Way (ROWs)						
Corridors	Seven corridors across the Missouri River: U.S. 191, State #236, Lloyd/Stafford Ferry road, DY Trail/Power Plant Ferry road, Fort Benton, Loma and Virgelle.	Three corridors across the Missouri River: Fort Benton, Loma and Virgelle. Five corridors with defined boundaries (BLM land within 1/2 mile of the centerline): U.S. 191, State #236, Lloyd/Stafford Ferry road, DY Trail/Power Plant Ferry road, and Klabzuba pipeline.				
Avoidance Areas	Recreational and scenic sections of the UMNWSR.	Scenic sections of the UMNWSR.				
	Cow Creek ACEC and riparian areas.	Bodmer Landscapes, Cow Creek ACEC, cultural/historic sites, riparian and wetland areas, and areas containing unique geologic formations.				
	Areas containing highly erosive soils (sedimentary Breaks soils).					Areas considered unsuitable due to erosion and slope.
	Stafford and Ervin Ridge WSAs, and Cow Creek WSA (Blaine County).					

**Table 2.38 Summary Comparison of Alternatives
Health of the Land and Fire**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
<i>Exclusion Areas</i>	Wild sections of the UMNWSR and Woodhawk, Dog Creek, and Antelope Creek WSAs.					
	Cow Creek WSA (Phillips County).	Cow Creek, Stafford, and Ervin Ridge WSAs.				
	WSAs not designated as wilderness and released by Congress managed like adjacent BLM land.	WSAs not designated as wilderness and released by Congress are avoidance areas.	WSAs not designated as wilderness and released by Congress are exclusion areas.	WSAs not designated as wilderness and released by Congress are avoidance areas.	WSAs not designated as wilderness and released by Congress are avoidance areas.	WSAs not designated as wilderness and released by Congress are avoidance areas.
Land Ownership Adjustment	No BLM land identified for disposal.	Eighty acres of BLM land identified for disposal (exchange for 70 acres of private land).				
Fire	State Director's Interim Guidance.	Aggressive fire suppression and limited use of prescribed fire.	Aggressive fire suppression and use of prescribed fire.	Responsiveness with a wide range of available fire management tools and flexibility.	Maximize the natural process with a minimum of intervention.	Responsiveness with a wide range of available fire management tools and flexibility.
Fire Management Unit	<i>Wildland</i>	<i>Prescribed</i>	<i>Wildland</i>	<i>Prescribed</i>	<i>Wildland</i>	<i>Prescribed</i>
<i>Wild and Scenic River</i>	F2	RX2	F1	RX1	F1	RX2
<i>Wilderness Study Areas</i>	F2	RX2	F2	RX2	F2	RX3
<i>North Monument</i>	F2	RX2	F1	RX1	F2	RX3
<i>South Monument</i>	F2	RX2	F1	RX1	F2	RX3
<i>F1 = Suppress all fires aggressively using all available methods</i> <i>F2 = Appropriate suppression response considering the natural role of fire</i> <i>F3 = Identify areas where wildland fire would be used under prescription</i> <i>RX1 = No prescribed fire</i> <i>RX2 = Prescribed fire based on public safety and resources</i> <i>RX3 = Prescribed fire based on the natural role of fire</i>						
Wild & Scenic Rivers (Cow Creek, Eagle Creek and Dog Creek)	No recommendation on suitability.	Three eligible streams are non-suitable.		Three eligible streams are suitable.		Three eligible streams are non-suitable.

Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Recreation						
Recreation Management Areas (RMAs)	Four existing RMAs: South Phillips, Judith, North Missouri Breaks, and Upper Missouri River.	Four existing RMAs consolidated into 2: Upper Missouri River and Uplands.				
Fees	Continue with the \$6 per vehicle fee for overnight camping at James Kipp Recreation Area.	Discontinue the fee at James Kipp Recreation Area and no additional fee sites.	Fee for overnight camping in developed recreation sites (Level 1).	Fee for overnight camping in developed recreation sites (Level 1) and to boat/camp on the Missouri River.		Fee for use of some existing structures (cabins and corrals).
	Fees used for site maintenance and visitor services improvements.		Fees collected for camping used for site maintenance and visitor services improvements.			
			Fees to boat the Missouri River to cover management costs. Fees also be used to support county emergency services and to purchase short-term campsite easements or leases from willing private landowners.			
			After the RMP is completed, with public input, develop a business plan to determine the fee amounts charged.			
Coordination with Gateway Communities	Encourage private sector initiatives to develop visitor opportunities.	Partner with gateway communities or provide a staffed site for visitor information.	Partner with gateway communities or provide a staffed site for visitor information.	Provide visitor information to local communities.	Partner with gateway communities or provide a staffed site for visitor information.	
Research, Collection, and Special Event Activities	Archaeological and historical investigations and paleontological research allowed.			Archaeological and historical investigations (except for 106 permits) and paleontological research not allowed.	Archaeological and historical investigations and paleontological research allowed.	
	Personal collection of plant material allowed.	Personal collection of plant material allowed.	Personal collection of plant material allowed in specified areas.	Personal collection of plant material prohibited.	Personal collection of plant material allowed.	

**Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
	Personal collection of common invertebrate fossils and petrified wood allowed.	Personal collection of common invertebrate fossils and petrified wood allowed in identified areas.			Personal collection of common invertebrate fossils and petrified wood prohibited.	Personal collection of common invertebrate fossils and petrified wood allowed in identified areas.
	Use of metal detectors by permit only.	Use of metal detectors authorized in certain areas. By permit only in other areas.			Use of metal detectors prohibited.	Use of metal detectors by permit only.
	SRPs required for all special activities. Large group events authorized on a case-by-case basis.	May limit the size of a group or specific activities. Large group events authorized on a case-by-case basis.			Large group events not allowed.	May limit the size of a group or specific activities. Large group events authorized on a case-by-case basis.
Recreation Activities in Sensitive Wildlife Habitat	Personal collection of shed antlers (horn hunting) allowed. A seasonal restriction may apply.	Personal collection of shed antlers (horn hunting) allowed from April 1 to Nov. 30.	Personal collection of shed antlers (horn hunting) allowed from May 16 to Nov. 30.		Personal collection of shed antlers (horn hunting) not allowed.	Personal collection of shed antlers (horn hunting) allowed. A seasonal restriction may apply (Dec. 1 to March 31).
	Camping on islands discouraged from April 1 to July 31.	Camping on islands allowed.		Camping on islands not allowed from April 1 to July 31.	Camping on islands not allowed.	Camping on islands not allowed from April 1 to July 31.
Interpretive Sites (Cultural and Geological)	Interpretation on a case-by-case basis.	Interpretation with signs, exhibits and trails.	Small, low-key interpretive signs that blend in with the surroundings. Simple markers at some sites. Portable interpretation available.		Interpretation at sites not provided.	Small, low-key interpretive signs that blend in with the surroundings. Simple markers at some sites. Portable interpretation available.

**Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Upper Missouri River SRMA						
<i>Special Recreation Use Permits (SRPs)</i>	SRPs limited to 23.	SRPs not limited.	SRPs limited to 30.		SRPs not limited but user days limited based on an allocation system.	SRPs limited to 23.
<i>Opportunities For Boaters</i>	The number of boaters not limited.		Standards and indicators used to manage visitor use: when reached or exceeded, actions taken to reduce impacts without limiting the number of boaters.	Standards and indicators used to manage visitor use: when reached or exceeded, actions taken to reduce impacts without limiting the number of boaters.	Develop and implement an allocation system upon completion of the RMP.	Standards and indicators used to manage visitor use: when reached or exceeded, actions taken to reduce impacts without limiting the number of boaters.
				If necessary, implement an allocation system.		
	Groups larger than 50 require an SRP.	No restriction on group size.	From June 15 to Aug. 1, groups larger than 20 could launch at Coal Banks or Judith Landing on Wed., Thurs. and Fri.	Groups larger than 30 require an SRP.	Groups larger than 16 require an SRP.	From June 15 to Aug. 1, groups larger than 20 could launch at Coal Banks or Judith Landing on Wed., Thurs. and Fri. Groups larger than 30 require an SRP.
Camping Facilities						
<i>Camping</i>	Recreation facilities and campsites include five Level 1 sites, four Level 2 sites, and twelve Level 3 sites.	Additional Level 1, 2 and 3 sites provided as needed to address use demands or resolve visitor use issues.	Additional Level 1 sites only in the recreation segments of the UMNWSR. Improvements to Level 1 and 2 sites to address visitor use issues. Additional Level 2 sites between Fort Benton and Judith Landing as necessary.	No additional Level 1 sites. Improvements to existing Level 1 and 2 sites to address visitor use issues. Additional Level 2 sites only in the recreation segments of the UMNWSR. Additional Level 3 sites as needed.	Recreation facilities and campsites remain at the current number and location.	Additional Level 1 sites only in the recreation segments of the UMNWSR. Improvements to Level 1 and 2 sites to address visitor use issues. Additional Level 2 sites between Fort Benton and Judith Landing as necessary.

**Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
			Additional Level 3 sites as needed.			Additional Level 3 sites as needed.
		Agreements with willing private landowners to develop alternative campsites.				
<i>Length of Stay at One Campsite</i>	14-night limit.		From June 15 to Aug. 1, a 2-night limit at Level 2 sites. 14-night limit at other sites.	From June 15 to Aug. 1, a 2-night limit at Level 2 and 3 sites. 14-night limit at other sites.		From June 15 to Aug. 1, a 2-night limit at Level 2 sites. 14-night limit at other sites.
<i>Camp Stoves, Fire Pans, or Fire Mats at Level 4 Opportunities</i>	Camp stoves, fire pans or fire mats not required.		Camp stoves, fire pans or fire mats required.			
<i>Signing</i>	Level 1 sites contain a full range of signs as necessary to provide for safety. International signs to mark Level 2 and 3 sites.	Signs as necessary at all levels of facility development (Levels 1-4) and not necessarily associated with a developed site.	Signs in Level 1 sites as needed to safely direct traffic and provide information. Signs to identify Level 1, 2 and 3 sites.	Signs in Level 1 sites commensurate with surroundings and development. Signs as necessary at Level 2 sites. No other signs.	Signs limited to Level 1 sites commensurate with surroundings and development. No other signs.	Signs in Level 1 sites as needed to safely direct traffic and provide information. Signs to identify Level 1, 2 and 3 sites.
Use of Motorized Watercraft on the Missouri River						
<i>Fort Benton – Pilot Rock (River Mile 0 to 52 - Recreation Segment)</i>	Open.	Open.	Open, except personal watercraft and floatplanes only allowed on river miles 0 to 3.	Open, except personal watercraft not allowed from June 15 to Sept. 15 and floatplanes only allowed on river miles 0 to 3.	No motorized watercraft.	Open, except personal watercraft and floatplanes only allowed on river miles 0 to 3.

**Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
<i>Pilot Rock to Deadman's Rapids (River Mile 52 to 84.5 – Wild and Scenic Segment)</i>	Seasonal restriction: Sat. before Memorial Day through the Sun. after Labor Day, downstream travel only at no-wake speed.	Open	Seasonal restriction: June 15 to Sept. 15, downstream travel only at no-wake speed.	Seasonal restriction: May 1 to Dec. 1, downstream travel only at no-wake speed.	No motorized watercraft.	Seasonal restriction: June 15 to Sept. 15, downstream travel only at no-wake speed.
<i>Deadman's Rapids to Holmes Council Island (River Mile 84.5 to 92.5 – Recreation Segment)</i>	Open.	Open.	Open, except no personal watercraft yearlong and floatplanes only allowed from Sept. 16 to June 4.	Open, except personal watercraft not allowed from June 15 to Sept. 15 and floatplanes not allowed yearlong.	No motorized watercraft.	Open, except no personal watercraft or floatplanes yearlong.
<i>Holmes Council Island to Fred Robinson Bridge (River Mile 92.5 to 149 - Wild and Scenic Segment)</i>	Seasonal restriction: Sat. before Memorial Day through the Sun. after Labor Day, downstream travel only at no-wake speed.	Open.	Seasonal restriction: June 15 to Sept. 15, downstream travel only at no-wake speed.	Seasonal restriction: June 15 to Sept. 15, no motorized watercraft; Sept. 16 to Dec. 1, downstream travel only at no-wake speed.	No motorized watercraft.	Seasonal restriction: June 5 to Sept. 15, no motorized watercraft.
Administrative Use of Motorized Watercraft on the Missouri River	Administrative use not restricted.		No personal watercraft or floatplanes yearlong.			
			Designate days when agencies use upstream travel (avoid peak use days).	BLM (and special use authorizations) follow no-wake downstream travel restrictions.	Agency motorized watercraft (and special use authorizations) follow the same restrictions as public.	Initiate a cooperative effort among agencies operating on the Missouri River to achieve uniform standard operating procedures to minimize impacts to boaters.
			Administrative use agreements outline guidelines for motorized use.			
			Livestock grazing permittees allowed upstream travel to administer a grazing permit with prior notification (verbal or letter).			

**Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Uplands SRMA						
Special Recreation Use Permits						
Commercial Hunting	No limit on the number of SRPs.		Limit the number of SRPs to the current level (14).	No limit on the number of SRPs.		Limit the number of SRPs to the current level (14).
	Permits assigned to specific areas (requested or assigned hunting area).	Permits assigned to the entire Monument.		Permits assigned to areas with limited public access.	Permits assigned to areas with public access.	Permits assigned to existing use areas (2004).
Commercial Motorized Tours	Tours allowed on all roads.	Tours restricted to local and collector roads and some resource roads.	Tours restricted to local and collector roads.	Tours limited to 2 vehicles per operator per day on local, collector and some resource roads.	Tours not allowed.	Tours limited to 2 vehicles per operator per day on local, collector and some resource roads.
Camping Facilities						
Camping	In some areas, do not construct developed sites or undeveloped sites unless a partnership is realized through local service organizations.	Level 1 and 2 sites confined to fishing reservoirs, overlooks, historic sites, etc.	Level 1 sites at the beginning of public access roads. Level 2 sites (park and explore) where people walk from parking areas.	Level 1 sites not allowed. Level 2 sites only on main artery roads.	Level 1 and 2 sites not allowed.	Level 1 sites at the beginning of public access roads. Level 2 sites (park and explore) where people walk from parking areas.
		Level 3 sites (pullouts) adjacent to the road. Fire rings are the only improvement.		Level 3 sites are the only	Level 3 sites not allowed.	Level 3 sites (pullouts) adjacent to local and collector roads or on some closed spur roads (within 300 feet). Fire rings are the only improvement.
Camp Stoves, Fire Pans, or Fire Mats at Level 4 Opportunities	Camp stoves, fire pans or fire mats not required.	Camp stoves, fire pans or fire mats not required.	Camp stoves, fire pans or fire mats not required.	Camp stoves, fire pans or fire mats not required.	Camp stoves, fire pans or fire mats not required.	Camp stoves, fire pans or fire mats not required.

**Table 2.38 Summary Comparison of Alternatives
Visitor Use, Services and Infrastructure**

Topic	Alternative A Current Mgmt	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F Preferred Alternative
Signs	Level 1 sites contain a full range of signs as necessary to provide for safety. International signs to mark Level 2 and 3 sites.	Signs as necessary at all levels of facility development (Levels 1-4) and not necessarily associated with a developed site.	Signs in Level 1 sites as needed to safely direct traffic and provide information. Signs to identify campsites of minimum size.	Signs in Level 1 sites commensurate with development. Signs as necessary at Level 2 sites. No other signs except for transportation.	Signs limited to Level 1 sites commensurate with development. No other signs.	Signs in Level 1 sites commensurate with development. Signs as necessary at Level 2 sites. No other signs except for transportation.

**Table 2.38 Summary Comparison of Alternatives
Natural Gas Exploration and Development**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Oil and Gas Stipulations and Conditions of Approval (see Table 2.21)						
Natural Gas Operations						
Seismic	Seismic operations consistent with the State Director's Interim Guidance.	Vehicle activity restricted to designated roads. Exceptions on a case-by-case basis.	Helicopter-supported seismic activities in specific areas. Gravitation methods on designated roads.	Vehicle activity restricted to designated roads. Exceptions on a case-by-case basis. Surface blasting on a case-by-case basis. Sensitive areas require helicopter support.		
Spacing Requirements	One well per half section in the Leroy Gas Field and 1 well per section in the Sawtooth Mountain Gas Field. Exceptions apply.	No more than 4 well locations/sites per section.	One well per half section in the Leroy Gas Field and 1 well per section in the Sawtooth Mountain Gas Field. Exceptions do not apply.	Spacing reduced in specific areas from 2 wells per section to 1 well per section.	One well per half section in the Leroy Gas Field and 1 well per section in the Sawtooth Mountain Gas Field. Increased well densities up to 1 well site per quarter section, subject to siting criteria.	
Drilling Operations	Follow standard operating procedures.	Minimal amount of surface disturbance permitted with the use of BMPs. Confine the operation to an acceptable (safe) area/space. Use low impact drilling technology, develop multiple wells from one location, or stay away from problem areas. This includes access to a drilling site.				
General Production Facilities and Equipment	Follow standard operating procedures.	Wildlife mitigation and BMPs on all gas compressors for noise control.				
		Compression facilities requiring more than 1/10 acre not allowed. Pumping units allowed provided noise is at an acceptable level.				Large gas compressors or pumping units located outside the Monument if possible.

**Table 2.38 Summary Comparison of Alternatives
Natural Gas Exploration and Development**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
						If located in the Monument, follow BMPs.
Administrative Access on Existing and New Resource Roads	Access allowed.		Travel restricted to the minimal vehicle needed for the job. Timing restrictions may apply.			
Pipelines	Follow standard operating procedures.		Restricted to existing or least intrusive disturbance.	Restricted to existing disturbance or access roads.		Restricted to existing or least intrusive disturbance.
Water Disposal	Follow standard operating procedures.	Pits sized according to water production with berms (wildlife escape ramps where necessary). Two trips per month allowed to transport water off site; exceptions on a case-by-case basis.	Pits sized according to water production with no berms (wildlife escape ramps required). Each well is limited to no more than 5 barrels of water per day. No water transported via tanker.			Pits sized according to water production with berms (wildlife escape ramps and/or netting where necessary). Two trips per month allowed to transport water off site; exceptions on a case-by-case basis.
			Option to dispose of the water via pipeline, disposal pits including tanks, or in a water disposal well.			

**Table 2.38 Summary Comparison of Alternatives
Access and Transportation**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Access						
Public Access	Easements considered only with willing sellers.					
	Public access easements for administrative use and for the public.	Public access easements where no legal access exists or where additional access is needed.	Public access easements where no legal access exists.	No public access easements.		Public access easements where no legal access exists or where additional access is needed.
	Cooperate with agencies and landowners to maintain access (block management or access agreements).			Cooperate with agencies and landowners to improve access.		Cooperate with agencies and landowners to maintain access (block management or access agreements).
Public Access on New Resource Roads Used for Natural Gas Operations	Open for public travel.		Public travel restricted to specified areas. No additional access in the Ervin Ridge WSA.	Public travel restricted in sensitive areas.	Closed for public travel.	Closed for public travel unless to meet management objectives.
Access for Individuals with Disabilities	Individuals with disabilities can request a permit to travel on closed roads.					
		Closed roads open for individuals with disabilities.		Identify closed roads (access) for individuals with disabilities, case-by-case basis.		If needed, identify closed roads (access) for individuals with disabilities.
BLM Road System						
BLM Roads to State and Private Land	BLM roads to state and private land open for administrative, private landowner, and public travel.	BLM roads to state and private land open for administrative and private land access. These roads also open for public travel unless closed to meet Monument objectives.				BLM roads to state and private land open for administrative and private land access. These roads also open for public travel if shown to meet Monument objectives.

Table 2.38 Summary Comparison of Alternatives
Access and Transportation

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
BLM Roads (see Table 2.26 for overall road system criteria)	Roads open unless currently restricted.	Roads evaluated based on erosion, identified wildlife habitat, and the need for the road.	Roads open associated with resource uses; recreation sites and areas, gas wells, range improvements, backcountry airstrips, etc.	Roads open if they serve a specific purpose (recreation sites, gas wells, range improvements, etc.). Most parallel and spur roads closed.	Collector and local roads open, but most resource roads closed.	Roads open associated with resource uses; recreation sites and areas, gas wells, range improvements, backcountry airstrips, etc.
<i>Open Yearlong</i>	506 miles	444 miles	407 miles	287 miles	101 miles	207 miles
<i>Open Seasonally</i>	73 miles	95 miles	94 miles	43 miles	4 miles	171 miles
<i>Closed</i>	15 miles	55 miles	93 miles	264 miles	489 miles	216 miles
Type of Motorized and Mechanized Use on Roads	Open roads available to motorized and mechanized use.	Open roads available to motorized and mechanized use. Some closed roads could be designated for a mechanized (e.g., mountain bike) trail.		Some roads could be limited to specific motorized and/or mechanized use.		Open roads available to motorized and mechanized use consistent with management objectives. Some closed roads could be designated as a mechanized (e.g., mountain bike) trail.
Road Classification and Maintenance						
Classification						
<i>Collector</i>	18 miles	18 miles	18 miles	18 miles	18 miles	21 miles
<i>Local</i>	31 miles	31 miles	31 miles	31 miles	31 miles	40 miles
<i>Resource</i>	545 miles	545 miles	545 miles	545 miles	545 miles	533 miles
Maintenance						
<i>Level 1 – Min</i>	15 miles	55 miles	93 miles	264 miles	489 miles	216 miles
<i>Level 2</i>	505 miles	465 miles	427 miles	256 miles	31 miles	314 miles
<i>Level 3</i>	64 miles	64 miles	64 miles	64 miles	64 miles	51 miles
<i>Level 4</i>	10 miles	10 miles	10 miles	10 miles	10 miles	13 miles
<i>Level 5 - Max</i>	0 miles	0 miles	0 miles	0 miles	0 miles	0 miles

**Table 2.38 Summary Comparison of Alternatives
Access and Transportation**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
		Cattleguards installed as needed or where appropriate.	Closed roads allowed to reclaim naturally and on selected sections reclamation may include ripping, scarifying, and seeding.	Closed roads reclaimed with planned/designed reclamation. On selected sections of the closed road reclamation may include ripping, scarifying, and seeding.		Cattleguards installed as needed or where appropriate.
		Closed roads allowed to reclaim naturally.				Closed roads allowed to reclaim naturally and on selected sections reclamation may include ripping, scarifying, and seeding.
Exceptions						
<i>Administrative Use Off Road and on Closed Roads</i>	Administrative use off road and on closed roads by BLM and other agencies allowed.			Lessees and permittees allowed seasonal use provisions as needed to administer a lease or permit.	Administrative use on closed roads by BLM and other agencies. No off-road travel.	Administrative use off road and on closed roads by BLM and other agencies.
	Administrative use off road and on closed roads by lessees and permittees limited to activities necessary to administer a lease or permit.				Permission provided on a case-by-case basis for lessees and permittees to drive off road and on closed roads to administer a lease or permit.	Administrative use off road and on closed roads by lessees and permittees limited to activities necessary to administer a lease or permit.
<i>Game Retrieval</i>		Big game retrieval allowed on some identified closed roads.	Big game retrieval allowed on identified closed roads from 10 a.m. to 2 p.m. and for 3 hours after the legal hunting time.	Big game retrieval allowed from 10 a.m. to 2 p.m. on specific designated closed roads.	Big game retrieval not allowed on closed roads.	Big game retrieval allowed from 10 a.m. to 2 p.m. on specific designated closed roads.

Table 2.38 Summary Comparison of Alternatives
Access and Transportation

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
	Non-motorized/non-mechanized game carts allowed off road, except in the WSAs.				Non-motorized/non-mechanized game carts allowed on closed roads. Game carts not allowed off road.	Non-motorized/non-mechanized game carts allowed off road, except in the WSAs.
	Game carts not allowed off road in the WSAs.					
Camping Along Roads	Motorized or mechanized vehicles are not allowed to pull off designated routes for camping.	Motorized or mechanized vehicles are allowed to pull off designated routes no more than 300 feet for camping.	Motorized or mechanized vehicles are allowed to pull off designated routes no more than 150 feet for camping.	Motorized or mechanized vehicles are allowed to pull off designated routes no more than 10 feet for camping.	Motorized or mechanized vehicles are not allowed to pull off designated routes for camping.	Motorized or mechanized vehicles are allowed to pull off designated routes no more than 300 feet for camping. In WSAs, motorized or mechanized vehicles are not allowed to pull off designated routes for camping.
Signs	Existing signs maintained. New signs where needed.	Existing signs maintained. New signs to enhance safety or prevent resource damage.			New or existing traffic control and directional signs maintained.	Existing signs maintained. New signs to enhance safety or prevent resource damage.
		Open roads signed, closed roads only signed if necessary.		Open and closed roads signed.	Open and closed roads not signed.	Open roads signed, closed roads only signed if necessary.
Aviation						
Backcountry Airstrips	Ten airstrips open yearlong.		Seven airstrips: 4 open yearlong and 3 open seasonally.	Six airstrips: 2 open yearlong and 4 open seasonally.	No airstrips.	Six airstrips: 2 open yearlong and 4 open seasonally.

**Table 2.38 Summary Comparison of Alternatives
Access and Transportation**

Topic	Alternative A <i>Current Mgmt</i>	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F <i>Preferred Alternative</i>
Commercial Scenic Flight Landings	Commercial scenic aircraft landings allowed.	Commercial scenic aircraft landings allowed.	Commercial scenic aircraft landings only on authorized airstrips. Seasonal restrictions may apply.	Commercial scenic aircraft landings only on specific authorized airstrips. Seasonal restrictions may apply.	Commercial scenic aircraft landings not allowed.	Commercial scenic aircraft landings only on specific authorized backcountry airstrips. Seasonal restrictions may apply.

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
<i>Air Quality</i>	Natural gas operations and smoke from wildland and/or prescribed fires could cause air quality to deteriorate in the local area. Dust generation from vehicle traffic on unpaved roads would add to the particulates contributed by natural gas operations and smoke. These effects are short-term and normally quickly dispersed by winds.					
<i>Cultural Resources</i>	Natural processes would impact archaeological and historical sites. These sites may also be subject to human-induced impacts such as vandalism and damage from over-visitation.	May have an increase in the impacts to cultural properties and the area's setting.	Similar to Alternative A, but with fewer human-induced impacts from roads, as 93 miles would be closed.	Similar to Alternative A, but with fewer human-induced impacts from roads, as 264 miles would be closed.	May cause the loss of the Monument's cultural resources from further field research and knowledge of the historic associations.	Similar to Alternative A, but with fewer human-induced impacts from roads, as 216 miles would be closed.
<i>Fish and Wildlife</i>	Management would improve habitat for sage-grouse, prairie dogs, many designated sensitive species, and in some important big game habitats.					
Mitigation	<i>Wildlife Habitat within Areas of Proposed Mitigation (acres)</i>					
Sage-Grouse Lek Nesting Area Winter Habitat Prairie Dogs Sensitive Species Bald Eagle Deer and Elk Range Antelope Range Bighorn Sheep Distribution Lambing Areas	0 Unknown 6,866 3,932 Unknown 37 31,885 26,700 Unknown Unknown	141 21,366 6,866 507 Unknown 436 231,885 26,700 Unknown 49,193	141 21,366 6,866 507 Unknown 133 231,885 26,700 134,639 49,193	141 21,366 6,866 3,932 Unknown 133 231,885 26,700 134,639 49,193	141 21,366 6,866 3,932 Unknown 133 231,885 26,700 134,639 49,193	141 21,366 6,866 3,932 Unknown 133 231,885 26,700 134,639 49,193
Natural Gas	Big game, sage-grouse and other wildlife species could be impacted by existing and potential natural gas development and infrastructure in crucial habitat.					

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
Wildlife Habitat within Oil and Gas Lease Stipulations or Proposed Conditions of Approval (acres)						
Sage-Grouse Lek Nesting Area Winter Habitat Prairie Dogs Sensitive Species Deer and Elk Range Antelope Range Bighorn Sheep Distribution Lambing Areas	0 Unknown 441 72 3 6,986 2,561 14,244 6,563	31 5,774 441 72 Unknown 26,123 6,149 14,244 6,563	31 5,774 441 72 535 26,123 6,149 14,244 6,563	31 5,774 441 Unknown 2,188 26,123 6,149 14,244 13,550	It is reasonably foreseeable no new natural gas wells would be drilled.	31 5,774 441 Unknown Unknown 26,123 6,149 14,244 6,563
Transportation	Big game, sage-grouse, and other wildlife species could be impacted by the use of roads in important wildlife habitat.					
Wildlife Habitat within 1/4 mile of BLM Roads Open Yearlong and Seasonally (acres)						
Elk Distribution Deer and Elk Range Antelope Range Bighorn Sheep Distribution Lambing Areas Sage-Grouse Winter Prairie Dog Towns	106,121 98,935 13,653 42,161 12,446 4,018 107	100,482 91,286 13,628 39,981 12,238 4,018 72	93,968 85,316 12,883 35,722 9,543 3,933 72	65,205 60,205 9,779 25,567 6,641 2,856 72	16,140 11,218 1,914 9,980 2,051 972 72	75,102 68,900 10,799 31,798 8,468 3,047 72
Geology and Paleontology	The flexibility to gather and interpret more information about geologic and paleontologic resources in the Monument would prevent the loss of this information due to erosion.			The impacts would be the same as Alternatives A through D.		
					The opportunity to develop information about geologic and paleontologic resources would be eliminated. Some information would be lost as sites erode.	The impacts would be the same as Alternatives A through D.
Surface-disturbing activities could contribute to increased soil compaction, surface runoff and a subsequent increase in soil erosion and sedimentation. Guidance from BMPs, Standards for Rangeland Health and design standards would be followed to minimize and mitigate soil impacts.						
Soils	Within the next 15 to 20 years, 35 natural gas wells	Within the next 15 to 20 years, 44 natural gas wells	Within the next 15 to 20 years, 28 natural gas wells	Within the next 15 to 20 years, 13 natural gas wells	Overall, this alternative would allow the fewest soil	Within the next 15 to 20 years, 34 natural gas wells

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
<i>Vegetation – Native Plants</i>	could be drilled, which would result in 71 acres of soil disturbances. Interim reclamation would reduce this to 13 acres.	could be drilled, which would result in 104 acres of soil disturbances. Interim reclamation would reduce this to 18 acres.	could be drilled, which would result in 56 acres of soil disturbances. Interim reclamation would reduce this to 11 acres.	could be drilled, which would result in 15 acres of soil disturbances. Interim reclamation would reduce this to 6 acres.	impacts from surface-disturbing activities. No additional natural gas wells would be drilled.	could be drilled, which would result in 73 acres of soil disturbances. Interim reclamation would reduce this to 14 acres.
	Localized vegetation disturbances would occur as a function of gas production activity, roads and recreation activities. These activities would likely impact less than 1,000 acres (in terms of total vegetation removal or damage to the health of plants).	Conversion of some non-native vegetation communities to native could occur. Mitigation measures would be adequate to ensure the impacts to vegetation are minimal (less than 1,000 acres).	Specific actions to manage sage-grouse habitat by conserving native vegetation communities would facilitate restoration in some native communities (small in acreage).	Minimizing roads and surface-disturbing activities would create minimum impacts to vegetation. Allowing prairie dogs to expand without controls could jeopardize vegetation in the localized area of the prairie dog town.		Localized vegetation disturbances would occur as a function of gas production activity, roads and recreation activities. These activities would likely impact less than 1,000 acres.
<i>Vegetation – Riparian</i>	The construction and operation of dams on the Missouri River has a dramatic impact on the flow regime of the river and has reduced the regeneration of woody riparian species, especially cottonwoods and willows. Livestock grazing has also impacted riparian regeneration, but can be partially mitigated by the management prescriptions contained in the Decisions Common to All Alternatives. The impacts to riparian regeneration from dams and livestock grazing would persist in both the short and long terms. Campers would continue to degrade riparian resources in small, localized areas at campsites. This degradation would persist into the long term. Planting native species in campgrounds would eventually result in more overstory species like cottonwood and green ash. Understory species, especially native shrubs and grasses, would continue to decline due to human impacts. Once the shrub understory has been eliminated, an understory dominated by introduced herbaceous species persists. The prospect of the site returning to a natural shrub-dominated understory is lost.					
<i>Vegetation – Noxious and Invasive Plants</i>	The management of invasive and noxious plants would continue as prescribed by the 2001 Guidelines for Integrated Weed Management. Invasive and noxious plants would be treated aggressively using integrated management principles as resources allow. This should result in a	The risk of new introductions of invasive and noxious plants and movement within the Monument would be mitigated to the extent possible. Other than natural causes such as wildlife, flooding, and ice scour, invasive species would have limited opportunity to colonize.			The impacts would be the same as Alternatives A and B.	

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
	significant decline in the amount and distribution of invasive and noxious plant populations in the next 10 to 20 years. Other activities and resource uses would continue the risk of introducing and moving invasive and noxious plant material to and within the Monument. These activities are unavoidable, but the risk could be reduced through proper mitigation and education of public land users. New introductions, when found, would be aggressively managed.	Management practices may be limited on the Missouri River that are needed to continue aggressive treatment of infestations not accessible by land. These infestations could grow unchecked in some areas.				
<i>Visual Resources</i>	There would be the potential for minor visual impacts on 61,700 acres of VRM Class I of which 2% could be related to natural gas activity. Visual impacts could potentially occur on 313,300 acres of VRM Class II, III and IV of which 13% could be related to natural gas activity.	There would be the potential for minor visual impacts on 111,480 acres of VRM Class I of which 1% could be related to natural gas activity. Visual impacts could potentially occur on 263,520 acres of VRM Class II, III and IV of which 16% could be related to natural gas activity.	There would be the potential for minor visual impacts on 111,480 acres of VRM Class I of which 3% could be related to natural gas activity. Visual impacts could potentially occur on 263,520 acres of VRM Class II and III of which 15% could be related to natural gas activity.	The visual impacts would be similar Alternative C. Visual impacts could potentially occur on 263,520 acres of VRM Class II of which 15% could be related to natural gas activity.	There would be the potential for minor or no visual impacts on 111,480 acres of VRM Class I and 263,520 acres of VRM Class II.	There would be the potential for minor or no visual impacts on 111,480 acres of VRM Class I of which 3% could be related to natural gas activity. Visual impacts could potentially occur on 263,520 acres of VRM Class II, III and IV of which 15% could be related to natural gas activity.
<i>Visual Resource Management Classes in the Monument (acres)</i>						
VRM Class						
Class I	61,700	111,480	111,480	111,480	111,480	111,480
Class II	118,800	44,520	161,560	263,520	263,520	161,560
Class III	8,200	105,000	101,960	0	0	24,770
Class IV	186,300	114,000	0	0	0	77,190
	%	%	%	%	%	%
	16	30	30	30	30	30
	32	12	43	70	70	43
	2	28	27	0	0	7
	50	30	0	0	0	20

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
Visual Resource Management Classes within Existing Oil and Gas Leases (acres)						
VRM Class and Oil and Gas Leases						
Class I	1,478	1,478	2,936	2,936	2,936	2,936
Class II	20,259	20,259	32,575	39,869	39,869	32,575
Class III	0	0	7,294	0	0	4,040
Class IV	21,068	21,068	0	0	0	3,254
Reasonable Foreseeable Natural Gas Wells within Visual Resource Management Classes (number)						
VRM Class and Natural Gas Wells						
Class I	0	1	1	0	0	0
Class II	20	23	21	13	0	24
Class III	0	0	6	0	0	3
Class IV	15	20	0	0	0	7
Water	Increased potential for large, catastrophic fires; making them the least attractive for protecting water resources. The impacts, if these fires occur, could degrade water quality, infiltration and ground water recharge for the short term.		A gradual improvement in watershed conditions in the long term. Implementation of the completed watershed plans would have both short and long-term positive impacts to water resources.			
Forest Resources	The impacts would be very similar for all of these alternatives. Forest products sales would be incidental and so scattered that they would be relatively insignificant, unless associated with a much larger project adjoining another ownership.			No forest treatments would increase the possibility of a stand-replacing event such as wildland fire.		The impacts would be the same as Alternatives A through D.
Lands and Realty	Seven corridors would cross the Missouri River.	Eight corridors would cross the Missouri River and five of these would have defined boundaries within 1/2 mile of a road or pipeline in the Monument (21,004 acres).				
Livestock Grazing	Management of habitat for sage-grouse and other wildlife species could cause some inconvenience to livestock grazing.	Management of habitat for sage-grouse and other wildlife species could cause some inconvenience to livestock grazing. Recreational activities could cause conflicts between livestock grazing and other uses. Establishment of resource reserve allotments would add flexibility to livestock grazing management.			Management of wildlife habitat could reduce available forage on select allotments. Without resource reserve allotments the flexibility in grazing activities would not be	
	The establishment of resource reserve allotments would allow added flexibility in livestock grazing management. Management of wildlife habitat and recreation would				The establishment of resource reserve allotments would allow added flexibility in livestock grazing management. Management of wildlife habitat and recreation would	

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
					available and this could have the impact of short-term reductions that could not be mitigated for an individual operator.	have minor, inconvenient impacts to livestock grazing.
Minerals – Oil and Gas	Natural gas exploration and development would occur over most of the existing leased area.	Natural gas exploration and development would occur over most of the leased area.	Natural gas exploration and development would occur over much of the leased area, but less than Alternative A.	Natural gas exploration and development would be almost half of the activity allowed under Alternative B.	Most restrictive level for natural gas exploration and development.	Natural gas production could occur over much of the leased area, but less than Alternatives A and B.
Stipulations or Conditions	<i>Oil and Gas Leases Affected by the Stipulations or Proposed Conditions of Approval (acres)</i>					
Sage-Grouse Lek	31	31	31	31	No new natural gas wells are expected to be drilled on federal leases in the Monument.	31
Nesting Area	5,774	5,774	5,774	5,774		5,774
Winter Habitat	441	441	441	441		441
Prairie Dogs	72	72	72	72		72
Sensitive Species	535	0	535	2,188		535
Deer and Elk Range	26,123	26,123	26,123	26,123		26,123
Antelope Range	6,149	6,149	6,149	6,149		6,149
Bighorn Sheep Distribution	14,244	14,244	14,244	14,244		14,244
Lambing Areas	6,563	6,563	6,563	13,550		6,563
Streams/Wetlands	8,921	0	16,510	20,751		8,921
Soils/Slopes	14,081	0	14,081	14,081		14,081
20% & Severe	7,035	7,035	7,035	7,035		7,035
30%	0	0	3,152	3,152		3,152
40%						
VRM Class						
Class I	1,478	1,478	2,936	2,936		2,936
Class II	20,259	20,259	32,575	39,869		32,575
Class III	0	0	0	0		4,040
Class IV	21,068	21,068	7,294	0		3,254

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
<i>Reasonable Foreseeable Natural Gas Wells</i>						
	35 wells could be drilled in the Monument along with another 21 wells within 1/2 mile of the Monument on federal leases. With a success rate of 35% this alternative could allow an additional 8.3 BCF of gas could be produced.	44 wells could be drilled in the Monument along with another 23 wells within 1/2 mile of the Monument on federal leases. With a success rate of 35% an additional 9.8 BCF of gas could be produced.	28 wells could be drilled in the Monument along with another 21 wells within 1/2 mile of the Monument on federal leases. With a success rate of 35% an additional 7.4 BCF of gas could be produced.	13 wells could be drilled in the Monument along with another 20 wells within 1/2 mile of the Monument on federal leases. With a success rate of 35% an additional 5.2 BCF of gas could be produced.	No wells would be drilled in the Monument but 18 wells could be drilled on federal leases within 1/2 mile of the Monument. With a success rate of 35% an additional 3.1 BCF of gas could be produced.	34 wells could be drilled in the Monument along with another 21 wells within 1/2 mile of the Monument on federal leases. With a success rate of 35% an additional 8.2 BCF of gas could be produced.
Recreation	Visitors would enjoy mostly unrestricted opportunities to participate in recreation pursuits.	Visitors would enjoy mostly unrestricted freedom to access recreation opportunities and participate in recreation pursuits.	Visitors would enjoy mostly unrestricted opportunities to participate in recreation pursuits.	Visitors would enjoy mostly unrestricted opportunities to participate in recreation pursuits.	Visitor use opportunities would be restricted under this allocation system would be initiated that may possibly reduce the freedom to access the UMNWSR.	Visitors would enjoy mostly unrestricted opportunities to participate in recreation pursuits.

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
	Visitors would not be subjected to further recreation use fees than currently charged to camp at the James Kipp Recreation Area.	There would be no recreation use fees charged in the Monument.	A fee would be charged to camp overnight in developed recreation sites (Level 1 facilities).	A fee would be charged to float the river and camp overnight in developed recreation sites (Level 1 facilities).	A fee would be charged to float the river and camp overnight in developed recreation sites (Level 1 facilities).	A fee would be charged to float the river and camp overnight in developed recreation sites (Level 1 facilities).
<i>Recreation Upper Missouri River</i>	<i>Upper Missouri River</i>					
	Limiting the number of SRPs would reduce opportunities for additional commercial use but lessens the competition for campsites and conflicts with other boaters.	Issuing unlimited SRPs could increase competition for campsites and conflicts with other boaters.	An additional seven permits could increase competition for campsites and conflicts with other boaters.	An additional seven permits could increase competition for campsites and conflicts with other boaters.	With an allocation system commercial river guiding businesses would have little or no opportunity for growth.	Limiting the number of SRPs would reduce opportunities for additional commercial use but lessens the competition for campsites and conflicts with other boaters.
	Facility development (Level 1, 2, and 3 sites) could detract from the visual quality and primitive setting of the UMNWSR.	Facility development (Level 1, 2, and 3 sites) and signing could detract from the visual quality and primitive setting of the UMNWSR.	Facility development (Level 2 sites) could detract from the visual quality and primitive setting of the UMNWSR.	The primitive nature of the UMNWSR would be protected from the visual impact of additional facility development.	Construction of facilities that may detract from the primitive nature of the UMNWSR would not occur.	Facility development would not detract from the wild and scenic river classification standards, and would ensure boaters have a range of opportunities.
	Motorized use on the river would continue with seasonal restrictions. As use by floaters increases	There would be no restrictions for motorized use on the river (149 miles). There would be unlimited	Leaving some sections of the river open (60 miles) for upstream and downstream travel would provide an	Leaving some sections of the river open (60 miles) for upstream and downstream travel would provide an	There would be no motorized use of the river (149 miles). The ability of many hunters and anglers to use motorized	Leaving some sections of the river open (60 miles) for upstream and downstream travel would provide an

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
	so may conflicts of use.	opportunities for access and use by motorized boaters and few opportunities for floaters to experience the primitive nature of the river free from the sight and sound of motorized craft.	<p>opportunity for visitors preferring to use motorboats.</p> <p>A seasonal restriction in the White Cliffs section (32 1/2 miles) would provide boaters an opportunity to experience a more primitive setting during the summer.</p> <p>A seasonal restriction in the lower section of the river (56 1/2 miles) would provide boaters an opportunity to experience a more primitive setting during the summer.</p> <p>Opportunities for the use of personal watercraft and landing of floatplanes would be greatly diminished.</p>	<p>opportunity for visitors preferring to use motorboats.</p> <p>A seasonal restriction in the White Cliffs section (32 1/2 miles) would provide boaters an opportunity to experience a more primitive setting during the summer and fall.</p> <p>A seasonal restriction in the lower section of the river (56 1/2 miles) would provide boaters an opportunity to experience a more primitive setting during the summer and fall.</p> <p>Opportunities for the use of personal watercraft and landing of floatplanes would be greatly diminished.</p>	<p>watercraft to access fishing and hunting opportunities would be eliminated.</p> <p>Opportunities for the use of personal watercraft and landing of floatplanes would be eliminated.</p>	<p>opportunity for visitors preferring to use motorboats.</p> <p>A seasonal restriction in the White Cliffs section (32 1/2 miles) would provide boaters an opportunity to experience a more primitive setting during the summer.</p> <p>A seasonal closure in the lower section of the river (56 1/2 miles) would provide a recreation opportunity for boaters seeking solitude and primitive experience but motorized use opportunities would decrease during the summer.</p> <p>Opportunities for the use of personal watercraft and landing of floatplanes would be greatly diminished.</p>

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
<i>Recreation Uplands</i>	<i>Uplands</i>					
	With no limit on the number of commercial SRPs issued for hunting in the uplands, the potential for conflicts between commercial and public hunters exists.	With no limit on the number of commercial SRPs, the potential for conflicts of use exists.	Limiting the number of commercial SRPs decreases the potential for conflicts of use.	With no limit on the number of commercial SRPs, the potential for conflicts of use exists, but issuing permits in areas with limited access would reduce the potential.	With no limit on the number of commercial SRPs and issuing permits in areas with public access, the potential for conflicts of use increases.	Limiting the number of commercial SRPs decreases the potential for conflicts of use.
	With additional signing, the primitive nature of the uplands may be visually compromised in some areas.	With additional signing, the primitive nature of the uplands may be visually compromised in some areas.	The primitive nature of the uplands may be visually compromised depending on the level of facility development.	Signing commensurate with the visual surroundings would reduce the potential for visual impairment to the primitive nature.	Limited signing would ensure the visual integrity of the area but it would eliminate the use of signs for information and education.	Signing commensurate with the visual surroundings would reduce the potential for visual impairment to the primitive nature.
<i>Transportation</i>	Under this alternative, 506 miles of BLM roads would be open yearlong for public motorized travel (includes portions of 442 BLM roads).	Under this alternative, 444 miles of BLM roads would be open yearlong for public motorized travel (includes portions of 431 BLM roads).	Under this alternative, 407 miles of BLM roads would be open yearlong for public motorized travel (includes portions of 324 BLM roads).	Under this alternative, 287 miles of BLM roads would be open yearlong for public motorized travel (includes portions of 221 BLM roads).	Under this alternative, 101 miles of BLM roads would be open yearlong for public motorized travel (includes portions of 30 BLM roads).	Under this alternative, 207 miles of BLM roads would be open yearlong for public motorized travel (includes portions of 96 BLM roads).
	About 90% of the Monument is within 1 mile of an open BLM road (yearlong or seasonally) with .99 miles per square mile.	About 88% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .92 miles per square mile.	About 85% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .86 miles per square mile.	About 76% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .56 miles per square mile.	About 31% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .18 miles per square mile.	About 90% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .65 miles per square mile.

Table 2.39 Summary Comparison of the Environmental Consequences

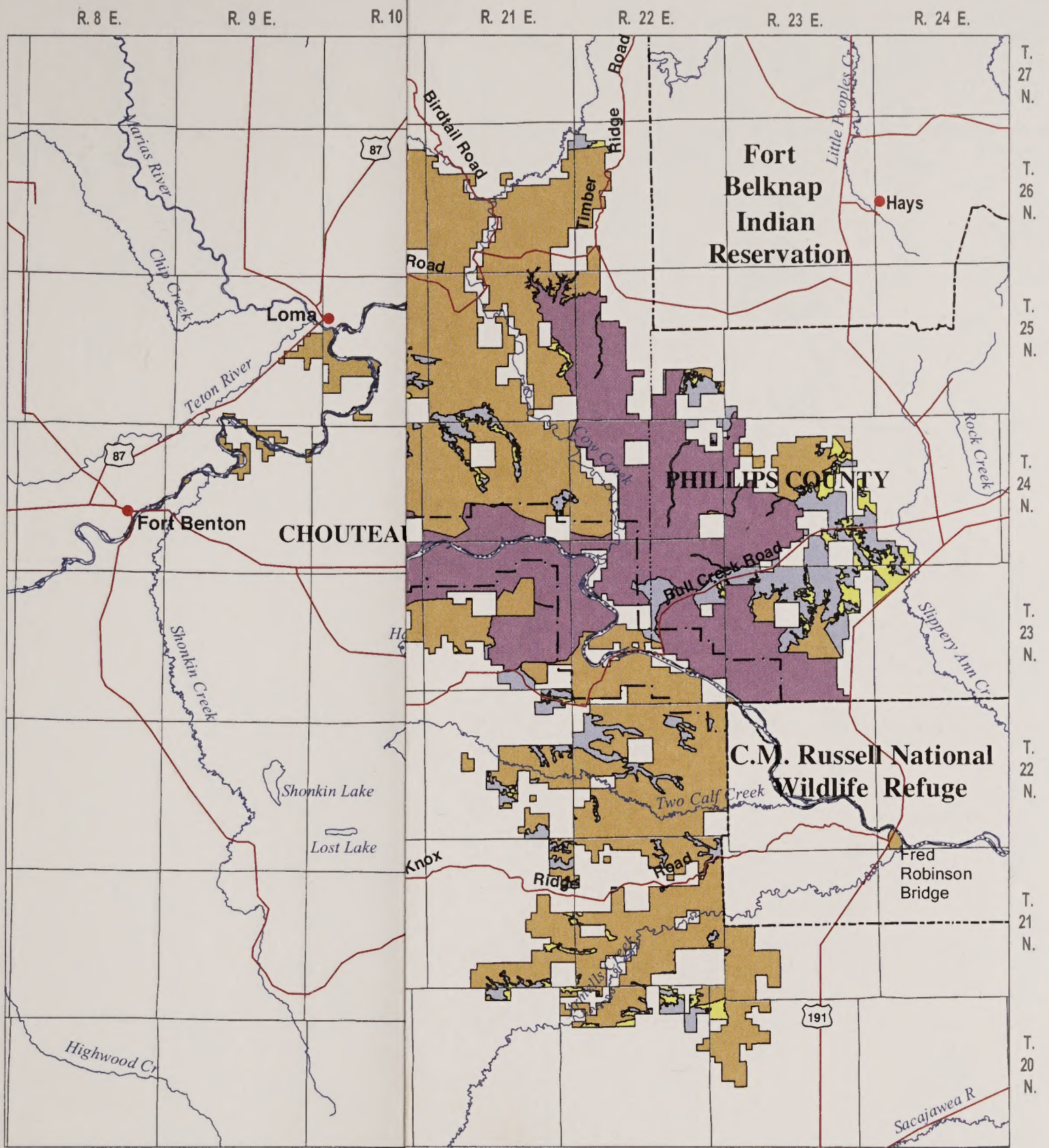
Resource	Alternative A (Current Management)		Alternative B		Alternative C		Alternative D		Alternative E		Alternative F (Preferred Alternative)	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Designated Roads												
Open Yearlong	506	85	444	75	407	68	287	49	101	17	207	35
Open Seasonally	73	12	95	16	94	16	43	7	4	1	171	29
Closed	15	3	55	9	93	16	264	44	489	82	216	36
	BLM Road Maintenance Levels											
Maintenance Levels	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Level 1: Min/Closed	15	3	55	10	93	16	264	45	489	83	216	36
Level 2: Limited	505	85	465	78	427	72	256	43	31	5	314	53
Level 3: High Vol	64	11	64	11	64	11	64	11	64	11	51	9
Level 4: Higher Vol	10	1	10	1	10	1	10	1	10	1	13	2
Fire	There are approximately 35,000 acres of possible prescribed fire projects.		Prescribed fire projects would depend on ecological need to introduce fire.		The emphasis for prescribed fire would be on reducing hazardous fuel buildup where wildland fire would threaten private and public structures and improvements.		Prescribed fire projects would include the projects proposed in the existing watershed plans and new projects based on fire regime conditions class. Could result in a substantial number of additional prescribed fire projects would be expected.		Overall, prescribed fire acres would be similar to Alternative D, less the fire regime conditions class.		Overall, prescribed fire acres would be similar to Alternative D, less the fire regime conditions class.	
Fire Management Unit	Potential Prescribed Fire Projects (acres)											
Wild and Scenic WSAs	There are approximately 35,000 acres of possible projects.		0 30,000		Limited 5,200 6,600 8,200		6,200 to 45,000 5,000 to 100,000 20,000 to 105,000		Less than 10,000. 6,200 plus 5,000 plus 20,000 plus		Less than 10,000. 6,200 plus 5,000 plus 20,000 plus	
North Monument			0									
South Monument			0									
	There would be no anticipated changes from the historical average number of fires or acres under this alternative.		This alternative would reduce the estimated acreages that could be subject to wildland fire.		Fire suppression acreage figures would be similar to Alternative B.		Suppression would be based on appropriate response and fires would be allowed to burn to natural barriers if		Overall, fire management in would emphasize a maximum return of fire on the landscape.		There would be no anticipated changes from the historical average number of fires or acres under this alternative.	

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
				the fire is not a threat to life, property or resource values.		
Fire Management Unit	Fire History 15 years	Potential Wildland Fire Impacts				
Wild and Scenic WSAs	27 fires 1,337 acres 37 fires 4,219 acres 45 fires 5,023 acres 44 fires 2,979 acres	- 10% No change - 20% - 20%	- 10% No change - 20% - 20%	- 10% + 50% + 50% + 40%	Potentially a significant increase in wildland fires.	Similar to Alternative A.
North Monument	The WSAs are in good condition, with some exceptions where vehicles and/or boating traffic have affected the resource. Fifty-six miles of vehicle ways would remain open yearlong.	The impacts would be similar to those in Alternative A, except restricting travel on some WSA vehicle ways would protect the sensitive vegetation and soil resources. Fifty miles of vehicle ways would remain open yearlong and six miles would be closed.	The impacts would be similar to those in Alternative A, except closing all WSA vehicle ways would protect the sensitive vegetation and soil resources.	The impacts would be similar to Alternative D, except not allowing the use of game carts on closed vehicle ways protects the landscape from other potential future mechanized trends in recreation.	The impacts would be similar to those in Alternative A, except restricting of WSA vehicle ways would protect the sensitive vegetation and soil resources. Forty miles of vehicles ways would remain open yearlong, 2 miles would be open seasonally, and 14 miles would be closed.	The impacts would be similar to those in Alternative A, except restricting of WSA vehicle ways would protect the sensitive vegetation and soil resources. Forty miles of vehicles ways would remain open yearlong, 2 miles would be open seasonally, and 14 miles would be closed.
South Monument						
<i>Wilderness Study Areas</i>						
<i>Social</i>	Alternatives A, B, and parts of C are most responsive to the desires of individuals and groups who feel Monument management should continue as it has in the past. They address the concerns of those who want to maintain roaded access, and those who would give a high priority to resource use, and could enhance the social wellbeing of all these groups and individuals. Individuals and groups who desire a primitive, quiet recreation experience would not feel these opportunities are available. They may also feel these	This alternative is less responsive to the desires of individuals who feel management should continue as it has in the past. The social wellbeing for these	This alternative is least responsive to the desires of individuals who feel Monument management should continue as it has in the past. The social			

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)	
	alternatives do not offer the ability to address current or future problems. Social wellbeing for these groups and individuals may decline.			groups and individuals could decline. Opportunities for motorized recreation would decline and opportunities for primitive, quiet experiences would be enhanced. Individuals and groups who would give a high priority to resource protection would feel this is accomplished, which could enhance their social wellbeing.	wellbeing for these groups and individuals could decline. Individuals and groups who want a primitive, quiet experience, would feel these opportunities are available. However, they may also feel that the proposed restrictions would be too extreme.		
Economics	Changes in forage availability would not create a measurable effect on ranching in the study area, but some individuals with grazing allotments within the Monument may have to make minor adjustments in their operation in response to some of the direction in the alternatives.						
	In the uplands section of the Monument, the supply of recreational activities exceeds the current and near future demand for these opportunities. The changes in management direction in the alternatives would not materially affect this relationship. However, some changes in management direction for the wild and scenic river portion could affect river users, including outfitters and guides and recreationists.						
	Natural gas operations would affect output, employment, and labor income in the regional economy but the change only represents a very small fraction of the economy.						
	Change in output, employment, and labor income in the regional economy for Alternatives B, C, E, and F (Preferred Alternative)						
	Output (\$)	No change.	+ 1,400,000	- 700,000	- 2,100,000	- 3,500,000	- 90,000
	Employment (jobs)		+ 9	- 4	- 14	- 22	- 1
	Labor Income (\$)		+ 190,000	- 120,000	- 390,000	- 650,000	- 20,000
Royalties (\$)		+ 91,000	- 58,000	- 191,000	- 316,000	- 8,000	
Disbursements (\$)		+ 46,000	- 29,000	- 96,000	- 158,000	- 4,000	



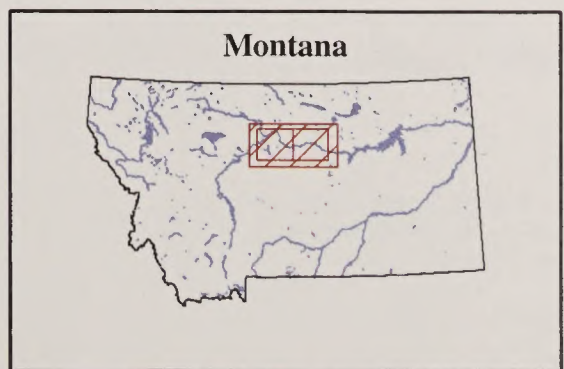
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Upper Missouri National Wild

Visual Resource Management

- Class I
- Class II
- Class III
- Class IV

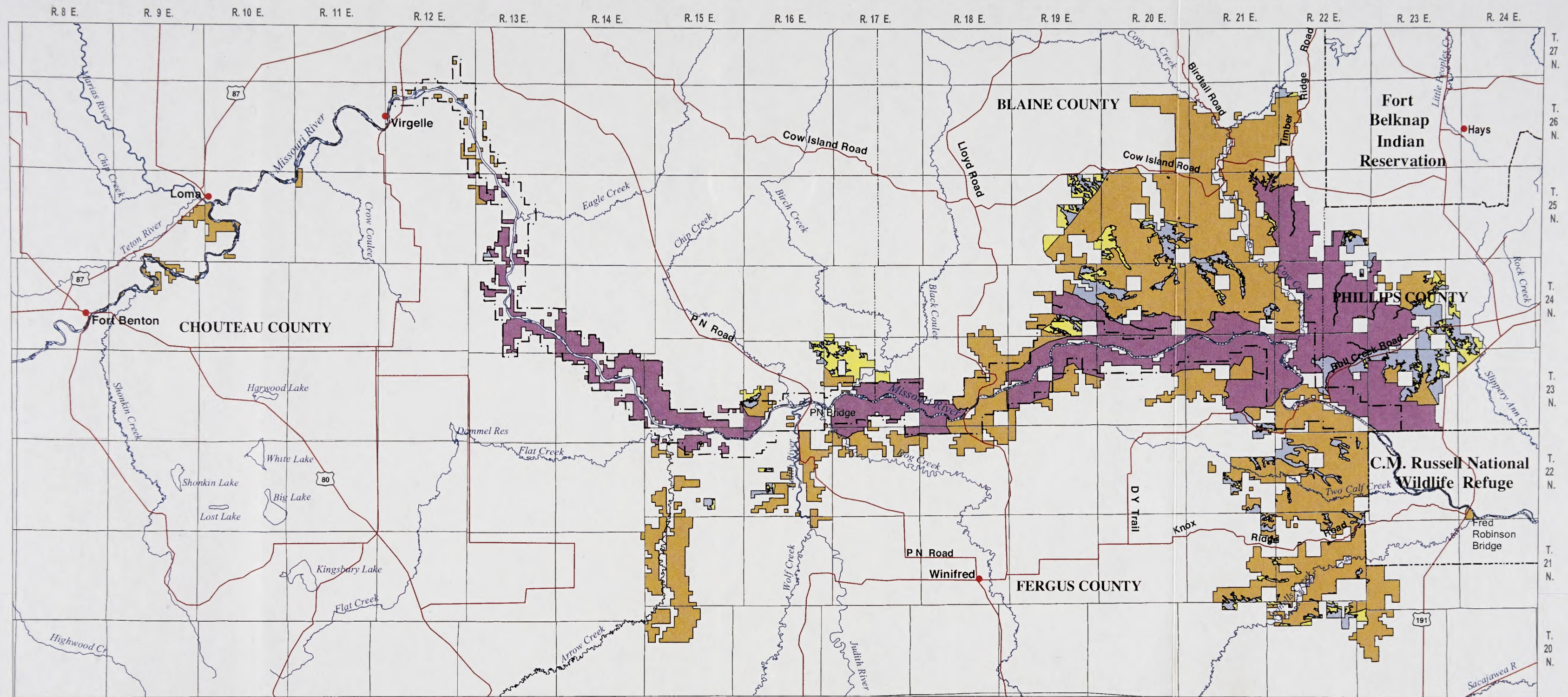
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Map A

Table 2.39 Summary Comparison of the Environmental Consequences

Resource	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)	
	alternatives do not offer the ability to address current or future problems. Social wellbeing for these groups and individuals may decline.			groups and individuals could decline. Opportunities for motorized recreation would decline and opportunities for primitive, quiet experiences would be enhanced. Individuals and groups who would give a high priority to resource protection would feel this is accomplished, which could enhance their social wellbeing.	wellbeing for these groups and individuals could decline. Individuals and groups who want a primitive, quiet experience, would feel these opportunities are available. However, they may also feel that the proposed restrictions would be too extreme.		
Economics	Changes in forage availability would not create a measurable effect on ranching in the study area, but some individuals with grazing allotments within the Monument may have to make minor adjustments in their operation in response to some of the direction in the alternatives.						
	In the uplands section of the Monument, the supply of recreational activities exceeds the current and near future demand for these opportunities. The changes in management direction in the alternatives would not materially affect this relationship. However, some changes in management direction for the wild and scenic river portion could affect river users, including outfitters and guides and recreationists.						
	Natural gas operations would affect output, employment, and labor income in the regional economy but the change only represents a very small fraction of the economy.						
	Change in output, employment, and labor income in the regional economy for Alternatives B, C, E, and F (Preferred Alternative)						
	Output (\$)	No change.	+ 1,400,000	- 700,000	- 2,100,000	- 3,500,000	- 90,000
	Employment (jobs)		+ 9	- 4	- 14	- 22	- 1
	Labor Income (\$)		+ 190,000	- 120,000	- 390,000	- 650,000	- 20,000
Royalties (\$)		+ 91,000	- 58,000	- 191,000	- 316,000	- 8,000	
Disbursements (\$)		+ 46,000	- 29,000	- 96,000	- 158,000	- 4,000	



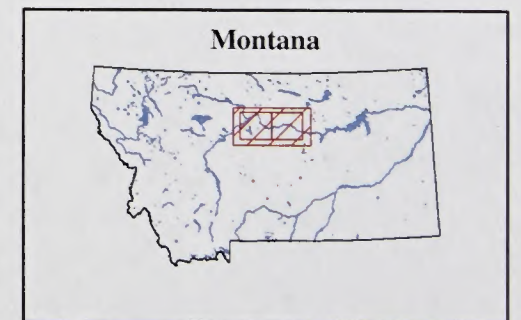
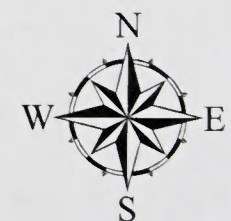
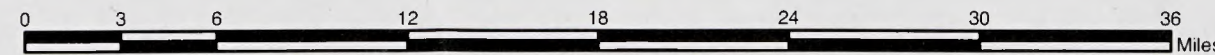
Upper Missouri River Breaks National Monument Draft RMP/EIS Visual Resource Management Classes (Preferred Alternative)

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Upper Missouri National Wild & Scenic River Bndy

Visual Resource Management Classes

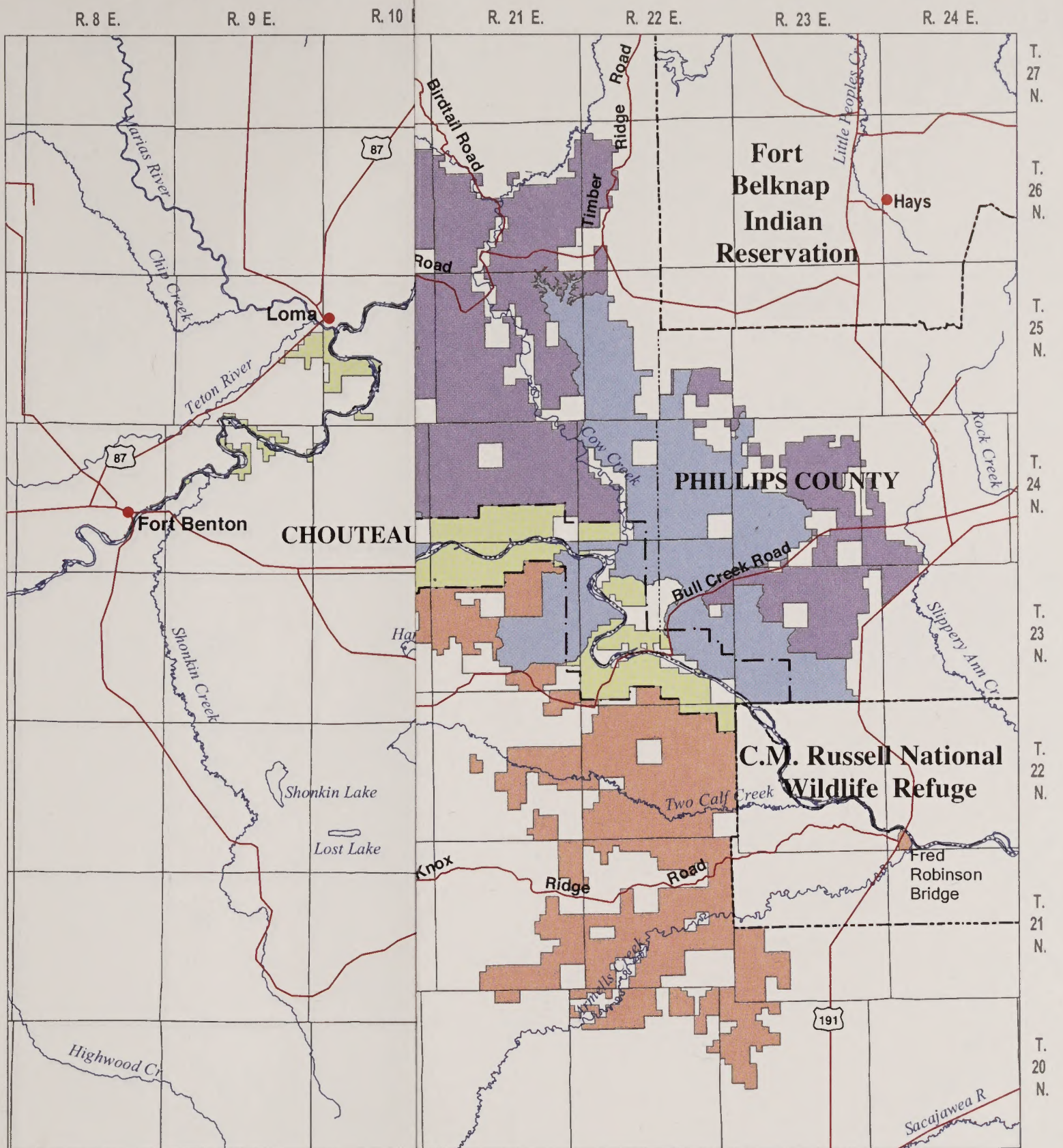
- Class I
- Class II
- Class III
- Class IV



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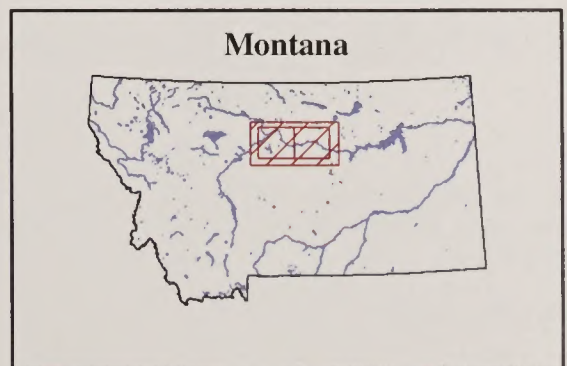
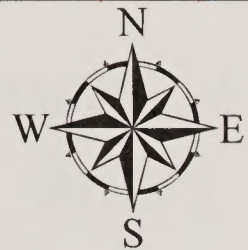
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Upper Missouri National Wildlife Refuge

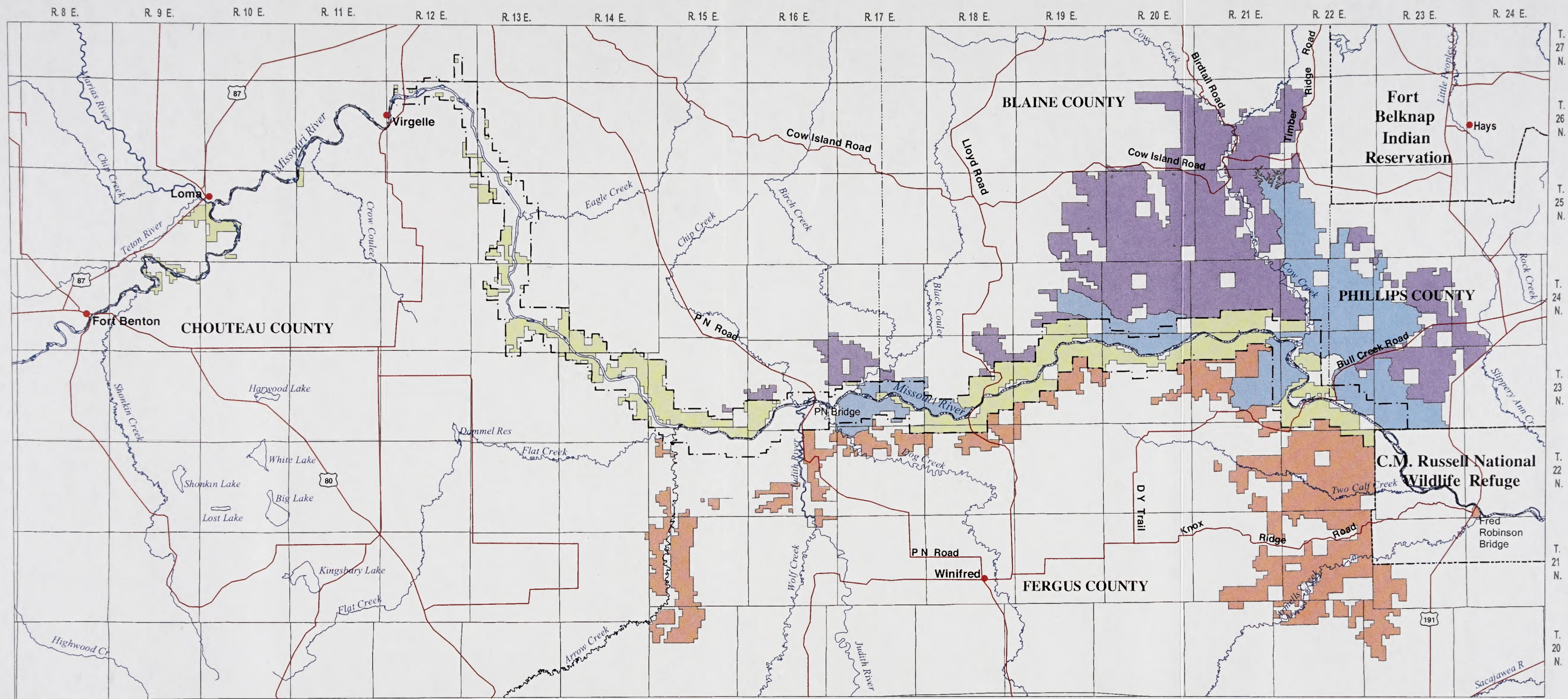
Fire Management Units

- NORTH MONUMENT
- SOUTH MONUMENT
- WILD & SCENIC RIVER
- WILDERNESS STUDY AREA

P/EIS



Map B



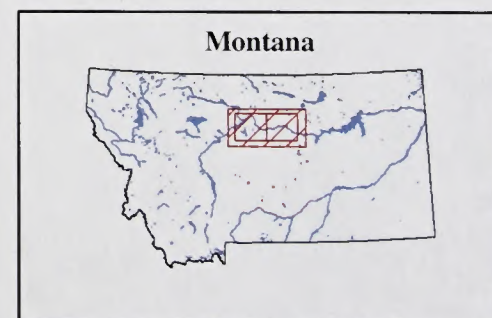
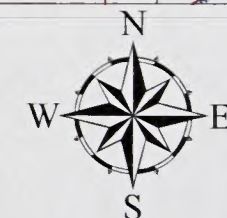
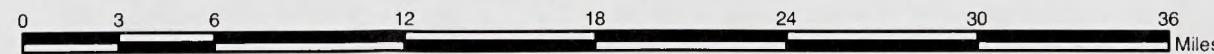
Upper Missouri River Breaks National Monument Draft RMP/EIS Fire Management Units

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Upper Missouri National Wild & Scenic River Bndy

Fire Management Units

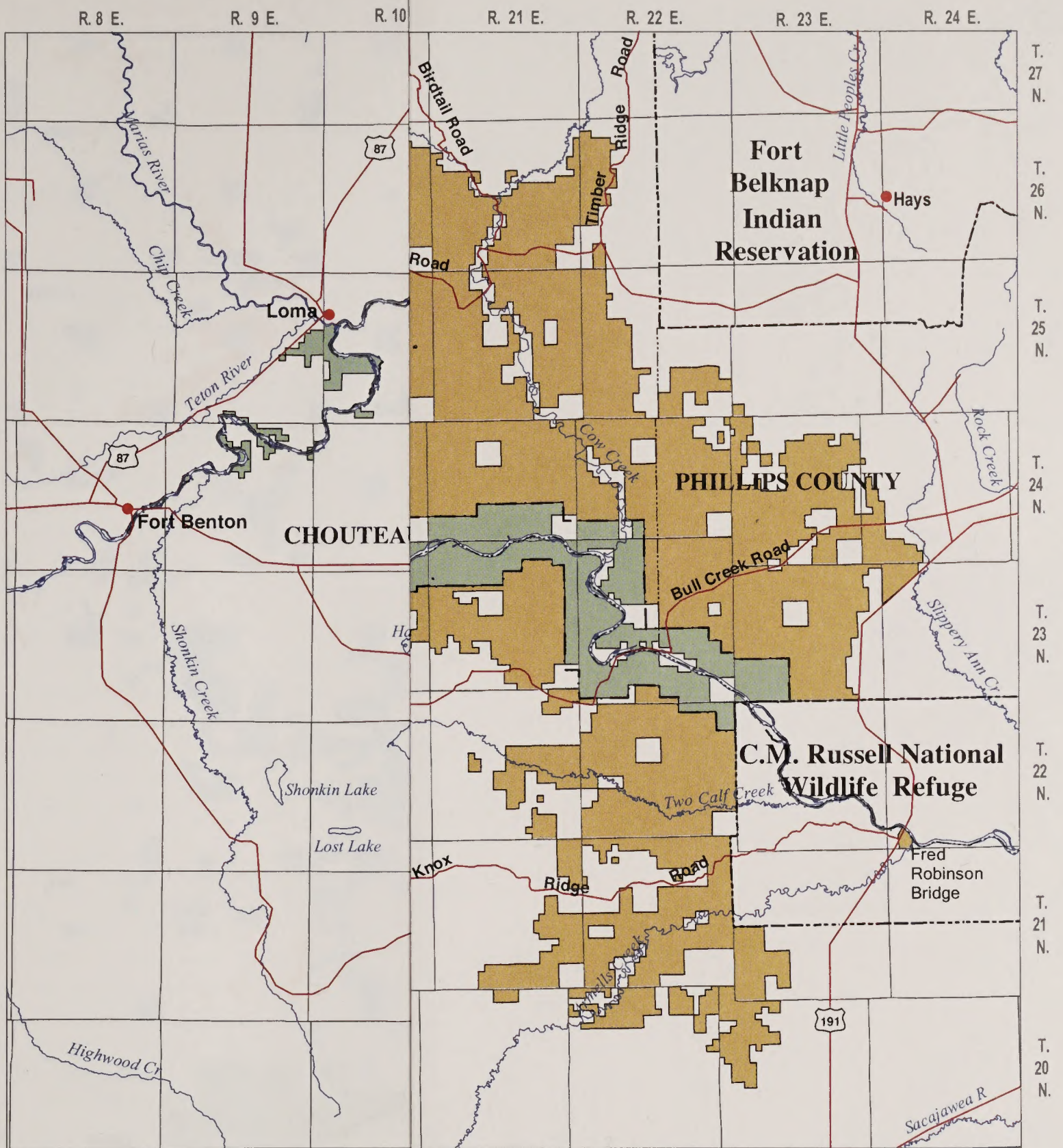
- NORTH MONUMENT
- SOUTH MONUMENT
- WILD & SCENIC RIVER
- WILDERNESS STUDY AREAS



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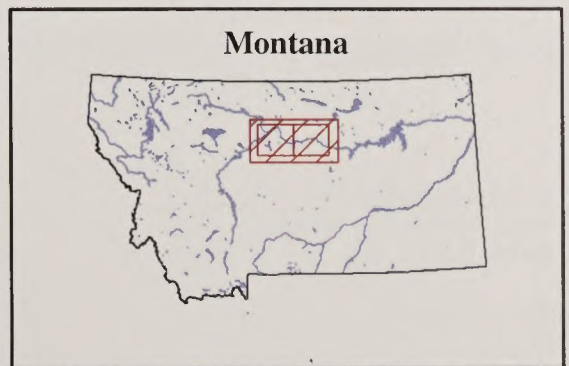
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Upper Missouri National Wild

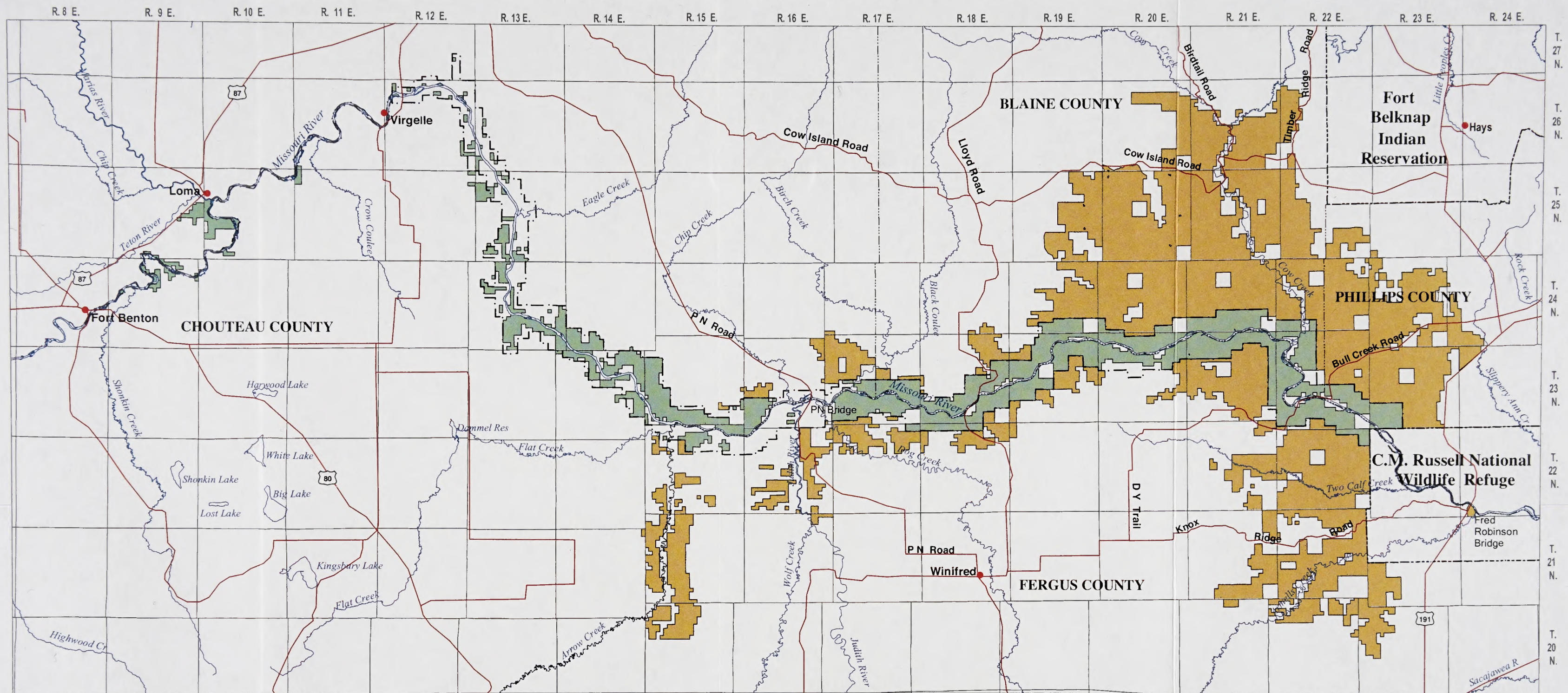
Recreation Management Area

- UPLANDS RMA
- UPPER MISSOURI RIVER R

P/EIS



Map C



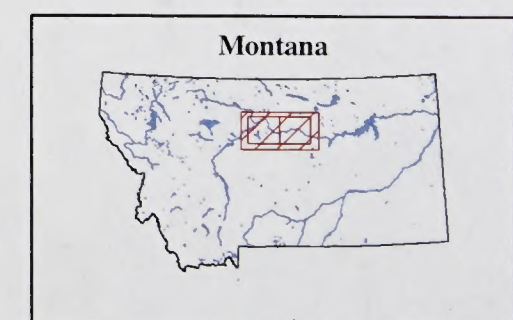
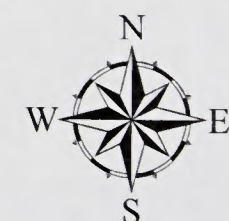
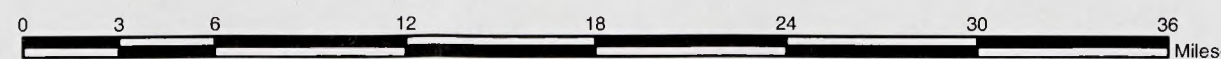
Upper Missouri River Breaks National Monument Draft RMP/EIS Recreation Management Areas (Preferred Alternative)

Legend

Upper Missouri National Wild & Scenic River Bndy

Recreation Management Areas

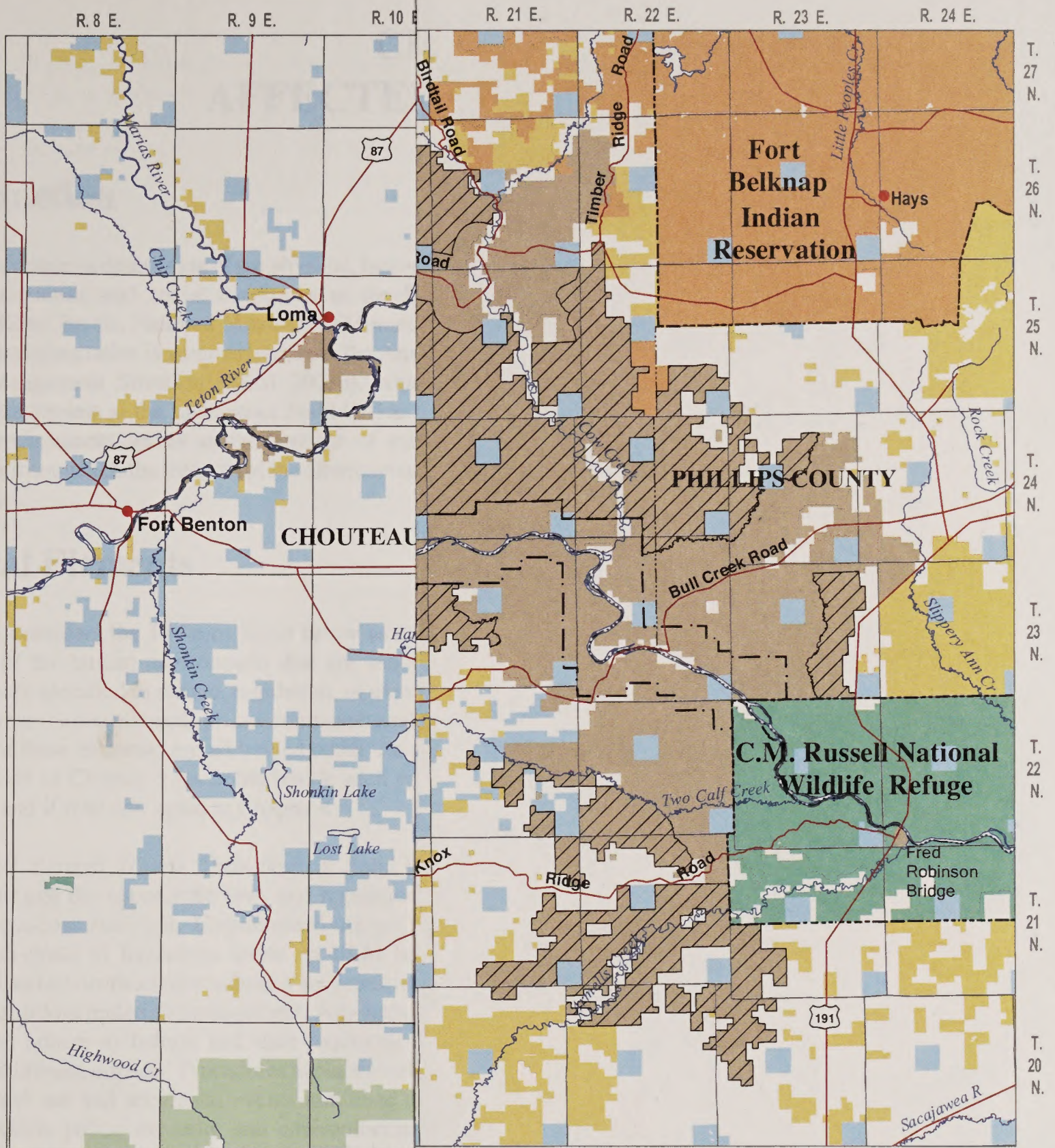
- UPLANDS RMA
- UPPER MISSOURI RIVER RMA



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The map projection is in Albers; the data is in NAD 27; and the units are in meters.



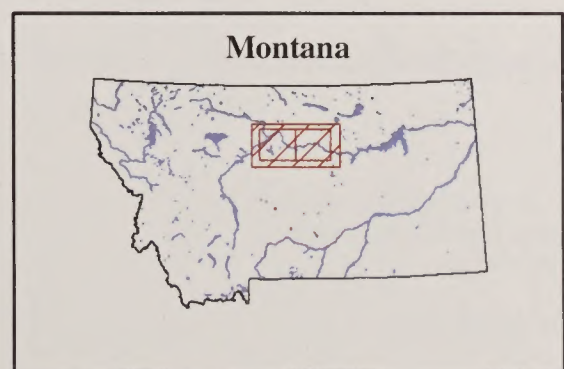
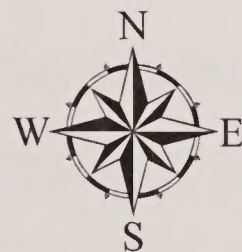
Legend

- Upper Missouri National Wildlife Refuge
- Public Access Considerations

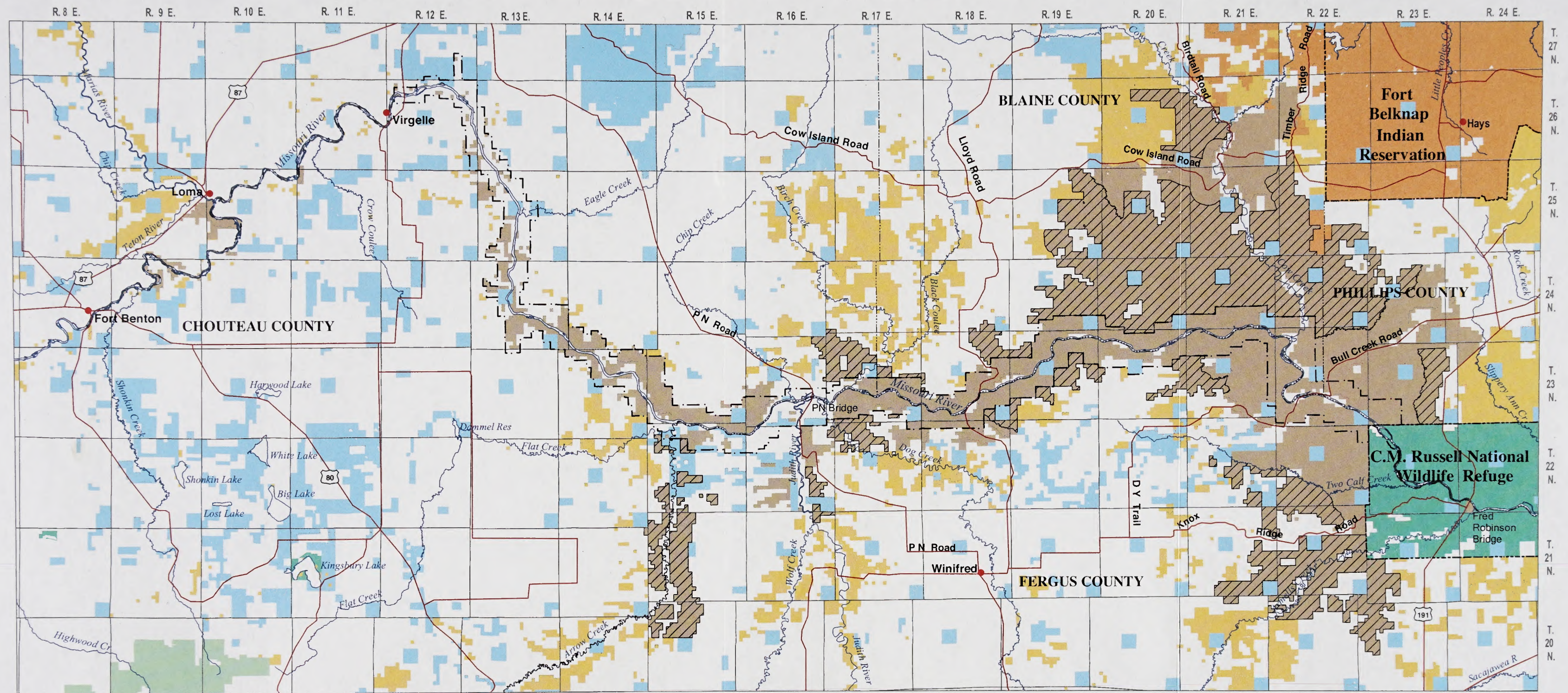
Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russell National Wildlife
- State
- Private

P/EIS



Map D



Legend

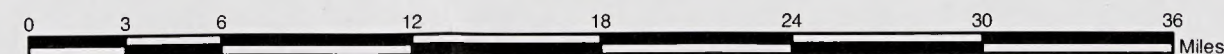
Upper Missouri National Wild & Scenic River Bndy

Public Access Considerations

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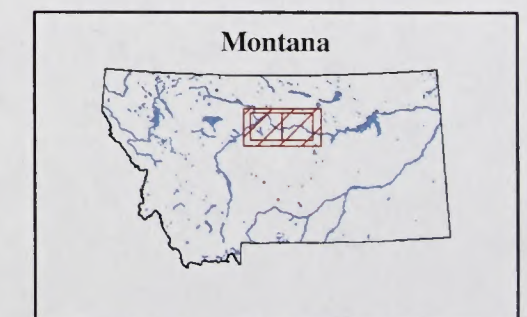
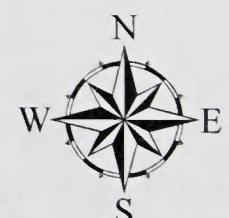
Upper Missouri River Breaks National Monument Draft RMP/EIS Public Access Considerations



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Map D

CHAPTER 3

AFFECTED ENVIRONMENT

Introduction

Chapter 3 contains a description of the physical, biological, cultural, economic and social conditions of the Upper Missouri River Breaks National Monument (Monument). Most of this information is summarized from the Analysis of the Management Situation (BLM 2003b), which is available for review at the Lewistown Field Office. The affected environment serves as the baseline of existing conditions from which the impacts of the alternatives may be analyzed.

Critical Elements

The BLM considers the 14 items listed below as critical elements of the human environment that are subject to requirements specified in statute, regulation, or executive order and must be considered in all environmental analyses. Thirteen of these elements are addressed under the pertinent sections of Chapter 3 (as noted beside each critical element), and if relevant, again in Chapter 4.

The critical element Wastes, Hazardous or Solid is addressed through the appropriate laws and regulations regarding hazardous materials. Unauthorized storage, treatment, or disposal of hazardous waste on BLM land is prohibited and environmental conditions are protected as a result of hazardous materials management. Any authorized uses would adhere to federal and state requirements to reduce or eliminate impacts. Procedures in place to address unauthorized use and accidental events minimize to the extent possible public exposure and environmental impacts.

Air Quality

Air quality is regarded as good mainly due to the few industries and homes located in the area. No air quality monitoring sites currently exist.

A planning and management process, Prevention of Significant Deterioration (PSD), was introduced as part of the 1977 Amendments to The Clean Air Act. These PSD requirements set limits for increases in ambient pollution levels and established a system for preconstruction review of new major sources. Three PSD classes have been established. Class I allows very small increases in pollution and is designed for pristine areas where almost any deterioration would be significant; Class II allows somewhat larger increases which allow for moderate, well-controlled growth; and Class III allows the air quality to “deteriorate” more with considerable increases in pollutant levels. The State of Montana determines the class. The Monument is within a Class II designation. Appendix F lists the federal and Montana air quality standards.

Climate

The climate is semiarid continental. It is marked by cold winters, warm to rarely hot summers, 12 to 14 inches of precipitation annually, winds primarily from the west, and abundant sunshine.

Average annual precipitation ranges from less than 12 inches in the eastern portion of the Monument to 14 inches in the western portions of the Monument. Snow on the

<i>Critical Element</i>	<i>Chapter 3 Section</i>
<ul style="list-style-type: none">• Air Quality• Areas of Critical Environmental Concern• Cultural Resources• Environmental Justice• Farm Lands• Floodplains• Invasive, Non-native Species• Native American Religious Concerns• Threatened or Endangered Species• Wastes, Hazardous or Solid• Water Quality – Drinking/Ground• Wetlands/Riparian Zones• Wild and Scenic Rivers• Wilderness	<p>Air Quality Special Designations Cultural Resources Social Soils Vegetation – Riparian Vegetation – Noxious and Invasive Plants Cultural Resources Fish and Wildlife; Vegetation – Native Plants see text above Water Quality Vegetation – Riparian Special Designations Special Designations</p>

plains more than 12 inches deep is uncommon but not rare. Snow generally falls between November and April, although traces have been reported at Lewistown (south of the Monument) in July and August.

Average precipitation recorded at weather stations in and adjacent to the Monument shows rainfall is concentrated in the period from April through June. Precipitation from July through September is characterized by localized intense thunderstorms that can drop more than an inch of rain or hail on a small area in a few minutes. Low humidity, high temperatures, and moderate-to-strong winds cause rapid loss of soil moisture.

Winter temperatures may be as low as -40° F for short periods, but the January mean monthly temperature is around 15° F. Summer temperatures as high as 110° F have been recorded, but the July mean monthly temperature is about 70° F. Temperatures may fluctuate widely during the course of a single day in either winter or summer, and local temperatures may be several degrees different than the average. Growing seasons, defined as the times between the last frost in spring and the first fall frost (temperatures of 32° F), range from 104 to 132 days. The Breaks are subject to intense lightning storms from July through September, often resulting in wildfires.

Cultural Resources

Prehistoric Overview

Based on archaeological evidence from the surrounding northwestern plains, it is believed that Ice Age hunters arrived in the region about 12,000 years ago in search of big game such as the now-extinct mammoth and giant bison. The chief weapon of the hunters was a thrusting spear tipped with a large stone point. Later, about 8,000 years ago, their descendants used an atlatl, or throwing stick, and a short spear tipped with a smaller stone point than that used previously. Big game animals remained important, but smaller species were also taken along with a variety of wild plant foods. By about 1,500 years ago, bow-and-arrow technology reached the plains, as did the manufacture of pottery.

The prehistoric cultures of the northwestern plains region were organized into small groups of hunter-gatherers, these cultures were largely dependent upon the naturally occurring resources of their environment. Because of environmental and technological limitations, little or no food production was practiced. Subsistence was oriented to resource availability, and campsites were generally located near important, exploitable resources. As the most important resource was the highly nomadic bison, these groups were highly mobile in their settlement patterns.

Near the end of the prehistoric period, about A.D. 1700-1750, horses were acquired on the northern plains. The use of horses as a means of transportation and food procurement radically changed the subsistence pattern of the region's inhabitants. No longer were they dependent on the territory in which they lived to survive; the horse allowed them the mobility to exploit new territories and to be more efficient at that exploitation. Thus, even the marginal hunting and gathering cultures evolved into specialized horse-mounted bison hunters by A.D. 1800.

To the first Euro-American visitors, the native groups of the region shared many cultural traits. These traits included high mobility, dependence on horse-mounted bison hunting, similar material culture and religious practices, and a common sign language in spite of many spoken languages and dialects. The Indian tribes inhabiting the region during the 19th century included the Piegan (Blackfeet), Gros Ventre (Atsina), River Crow, and Assiniboin. Frequent visitors to the Monument area also included the Mountain Crow, Shoshoni, Flathead and Nez Perce. Tribes not resident to the area passed through on buffalo hunts or war parties.

Monument lands contain 115 known prehistoric sites. These prehistoric sites include surface artifact scatters, buried habitation sites, tipi rings and buffalo hunting features.

Given the relative size of the Monument (375,000 acres) it does not appear to have many prehistoric sites. Even though only a small fraction of the Monument has been systematically inventoried for cultural sites, this low density should be expected. Most of the known cultural sites are within a fairly narrow corridor including the Upper Missouri National Wild and Scenic River (UMNWSR). Not surprisingly, relatively few sites are found in the steep, dry uplands which comprise a large portion of the Monument.

Historic Overview

Recorded history in the area begins with the written records of the early 19th century explorers of European and American origin. The Lewis and Clark expedition camped at numerous locations along the Missouri River in 1805 and 1806. The expedition also described for the first time a large number of the plants and animals found in the region.

Organized fur traders of the Rocky Mountain Fur Company, American Fur Company, and smaller outfits followed the Lewis and Clark expedition into the Missouri River country in the early 1800s. After 1829, the year the American Fur Company established Fort Union at the mouth of the Yellowstone River, several trading posts or forts were built in or near the Monument area, including Fort Piegan near the mouth of the Marias River; Fort

McKenzie; Fort Campbell and Fort Lewis near the present city of Fort Benton; and Fort Chardon at the mouth of the Judith River.

By the 1850s, the heyday of the fur trade was beginning to fade due to changes in world textile markets and the scarcity of certain fur-bearing animals in the North American west. However, buffalo hides, whiskey, and Indian annuities soon replaced beaver skins as the main items of trade in the Missouri River country. In addition to the American Fur Company, a number of trading companies began operating out of Fort Benton during this time, including the firms of I.G. Baker Company and T.C. Power and Bros. To reduce potential conflicts between traders and other immigrants and the American Indian community, the United States established a treaty with various tribes in the area in 1855 (i.e., the 1855 Stevens Blackfeet or Lane Bull Treaty).

Steamboats, which had been in use on the lower Missouri River for twenty years, were finally able to reach Fort Benton in 1859 due to the development of shallow draft vessels. The establishment of a port at Fort Benton was one of the most important historic events for central and northern Montana because almost all immigration, commerce, and communication to and from the outside world came through there.

The influx of fur traders, hide hunters, gold seekers, businessmen, and settlers into the region eventually caused problems with the native tribes. During the mid-1800s, Blackfeet, Gros Ventre, and Sioux war parties raided outlying settlements and wagon trains with considerable frequency. In order to quell the white settlers' fears about Indian attacks, military posts were established at Camp Cooke near the mouth of the Judith River in 1866 and at Fort Maginnis near Lewistown in 1880. Army garrisons were also occasionally stationed at Indian agencies, trading posts, and steamboat landings.

In September 1877, the Nez Perce crossed the Missouri River near Cow Island Landing on their flight from the U.S. Army under the command of General Howard. The skirmish at Cow Island on September 23 was the final encounter before their eventual surrender at the Bearpaw Battlefield.

The construction of James J. Hill's St. Paul, Minneapolis and Manitoba Railroad across the HiLine in 1887 changed the entire character of the region. The completion of the Montana Central Railroad and subsequent merger with Hill's company to form the Great Northern Railway in 1889 virtually eliminated steamboat traffic on the Missouri River. The last steamboat traffic between Bismarck, North Dakota and Fort Benton occurred in 1891.

In 1888, Congress ratified a treaty creating three reservations for the region's Indian inhabitants (Fort Peck, Fort

Belknap, and Blackfeet Indian Reservations) and ceding 17.5 million acres back to the U.S. Government.

A number of developments followed the coming of the railroad and ushered in the homestead boom of 1910-1918. These included the availability of larger homestead tracts, new dryland farming techniques, new mechanized farm equipment and a mammoth promotional campaign by the railroad companies. Homesteaders came by the thousands and the region was quickly settled by Germans and Scandinavians from the Midwest, as well as by eastern European immigrants like Bohemians and Yugoslavs. Times were good during the boom period because the climate was abnormally favorable and the war in Europe kept the demand and prices for farm products high. However, by the end of World War I, a severe drought had begun and food prices had fallen drastically. These conditions lasted for several years and by 1925, one out of every two homesteaders had lost or abandoned his farm and half of the banks in the region had failed.

Beginning in the late 1920s, a canner horse industry emerged in the Missouri River Breaks according to Robert Eigell (1987). Meat packers would pay \$5 a head for horses delivered to the railroad shipping pens (Eigell, R. 1987, 167). While not profitable at this price, it gave rise to the canner horse industry.

During the Great Depression, the U.S. Government provided relief to the residents of the region in a variety of ways. Under the Work Projects Administration, federal funds were available for improving community infrastructure as well as more ambitious projects such as the construction of the Fort Peck dam, which is east of the Monument.

Forty-four known cultural sites date to the historic period; that is, after 1805, but prior to World War II. Most of these sites are related to early agriculture and settlement, but early transportation and the military are also represented.

Previous consultation with tribes indicates that they attach value to the Monument and use certain areas for religious and cultural purposes. At this time, consultation has not resulted in a long list of discrete areas used for traditional purposes; however, in addition to specific areas that have been identified as traditional cultural properties, we know that tribes generally regard certain types of archaeological sites as having cultural and religious significance. These include vision quest sites, monumental/anthropomorphic/zoomorphic rock features, rock art sites, burials, habitation sites with special purpose ceremonial structures, and ceremonial and/or dance grounds.

Oral histories from long-term residents of the Breaks were recorded in 2003-2004. This local perspective of early agriculture in the Breaks was directed at preserving first-hand accounts of a lifestyle now gone. These firsthand

accounts are an interpretive resource for explaining this aspect of the Breaks heritage and address a preservation concern raised during public scoping.

Fish and Wildlife

The wildlife species within the Monument are diverse, abundant and widespread. Of the species known to occur in the area pre-settlement, only the grizzly bear, grey wolf, bison and black-footed ferret no longer occur in the Monument. The variety of vegetation along the river and its associated areas provides habitat for the diverse wildlife population. More than 60 mammals, 233 species of birds and 20 species of amphibians and reptiles inhabit these areas. The river itself is home to 48 species of fish ranging from the half-ounce minnow to the 140 pound paddlefish.

Mammals: The area between the river’s edge and the mixed forested, sagebrush steppe and agricultural land along the canyon rims provides valuable habitat for several species of mammals. Probably the most significant of these mammals are the special status black-tailed prairie dog and five big game animals: bighorn sheep, elk, mule deer, whitetail deer and pronghorn antelope. The canyon areas also provide habitat for predator species. Mountain lions appear to be doing well in the Breaks portions of the corridor.

Birds: Of the 233 species of birds that inhabit the corridor, the bald eagle is on the threatened and endangered list and 23 additional bird species have been designated sensitive species by the Montana BLM in cooperation with the Montana Natural Heritage program. The cliff faces provide perching and nesting habitat for many raptors and other birds. The more significant and abundant of the cliff nesters (golden eagle, prairie falcon, sparrow hawk, and Canada geese) are using some of the cliffs adjacent to water to nest in. Four species of upland game birds are present in the corridor: gray partridge, sharp-tailed grouse, sage-grouse and ringnecked pheasant.

Fish: Forty-eight species of fish are found in this area of the Missouri River and its tributaries. Of these, the pallid sturgeon is on the threatened and endangered list and five are considered to be special status species: blue sucker, paddlefish, sauger, sicklefin chub, and sturgeon chub. Walleye, channel catfish, and shovelnose sturgeon are also present.

See Appendix L.2 for a complete list of fish, wildlife, herptofauna and avian species found within the Monument.

Several important management species occur within the Monument. They are described below.

Elk

The distribution of elk in Montana changed following settlement by the white man. Early accounts of trappers and explorers indicate that elk were found in all parts of the state with the exception of northwestern Montana. Following settlement, elk numbers decreased and by the turn of the century only small remnant herds of elk remained in the mountainous areas of Montana and in Yellowstone National Park. Elk were eliminated from eastern Montana. Elk distribution today is the result of transplant efforts and big game management.

Elk were reintroduced to the Missouri River Breaks near the Fred Robinson Bridge in 1951. Thirty-one animals were transplanted from Yellowstone National Park. The population increase and expansion into unoccupied habitat has occurred west to the McClelland-Stafford Ferry, and the Bears Paw herd has moved as far south as the Stafford Wilderness Study Area during severe winters.

Elk are scattered throughout the less rugged habitat within the Monument, generally concentrating in areas with good-to-excellent range condition and adequate water sources. Elk typically use woody draws consisting of ponderosa pine and juniper adjacent to sagebrush/grassland habitat for security and winter cover. Riparian bottoms are used in conjunction with upland areas for forage and security purposes. These bottoms become increasingly important during drought periods when upland reservoirs are dry. Current counts by Montana Fish, Wildlife & Parks estimate 100+ elk on the north side of the river, and 300+ on the south side, within the Monument. Numbers can fluctuate as elk migrate freely between the Bears Paw Mountains and the Missouri River Breaks on the north side of the river, and between the CMR refuge and the Monument on the south side of the river, but are generally believed to be expanding their range. Acres of elk distribution within the Monument are shown in Table 3.1 and displayed on Map E. Acres of elk winter range are shown in Table 3.1 and displayed on Map F.

Table 3.1 Wildlife Distribution	
Species	Acres
Elk Distribution	226,185
Elk and Deer Winter Range	231,885
Antelope Crucial Winter Range	26,700
Bighorn Sheep Distribution	134,639
Bighorn Sheep Lambing Areas	49,193
Sage-Grouse Crucial Winter Habitat	6,866
Prairie Dog Towns	507

Deer

Mule deer are the most numerous big game species within the Monument. Mackie (1965) described in detail key mule deer ranges within the Breaks, including the ponderosa pine/juniper type on moderate-to-steep slopes and the sage/wheatgrass type on small ridge tops and along margins of more extensive ridges. Key habitat in the remaining prairie lands is found primarily along intermittent streams and/or rough Breaks.

Deer in the Breaks are essentially non-migratory; however, they do concentrate on south and southwest facing open slopes and ridge tops during the winter. During winters of heavy snowfall, sagebrush is often the only available forage plant and becomes crucial to the survival of many deer herds. Escape and thermal cover are also important in maintaining deer populations; without sufficient cover, fawns are easily susceptible to predators and adverse weather.

Whitetail deer are less common within the Monument, but utilize riparian areas along the Missouri River and major tributaries year round.

Acres of deer winter range are shown in Table 3.1 and displayed on Map F.

Antelope

The pronghorn antelope population was estimated at 2.5 million at its peak before settlement of Montana. Populations have since declined. This can be attributed to disturbance of preferred habitat by human activities.

Habitat frequented by pronghorn antelope varies with the season. Antelope currently occur within the Monument in small numbers year around, primarily in the sagebrush/grassland habitats. The sagebrush ridges and the transition areas between sagebrush and ponderosa pine/juniper provide crucial winter habitat during harsh winter weather, including deep snow and very cold, windy weather. These areas provide protection from the weather and food where snow has blown clear. Herds from 50-300 animals can congregate in these areas during this high stress period.

Acres of antelope crucial winter range are shown in Table 3.1 and displayed on Map G.

Rocky Mountain Bighorn Sheep

When Lewis and Clark first explored the Missouri River, they noted that populations of Audubon's bighorn sheep (*Ovis canadensis auduboni*) in prairies and breaks along the river in what is now Montana (Buechner 1960) were abundant. This sub-species was driven to extinction in the early

1900s by overhunting, disease, and competition from domestic livestock (Geist 1971).

Distribution of bighorn sheep in Montana has now been extended due to live trapping and transplanting to suitable areas they previously occupied. Management agencies began using translocations to return bighorn sheep to parts of their historic range as early as the 1930s (Bleich, et al. 1990, Dunn 1996).

In 1980, 28 Rocky Mountain bighorn sheep from the Sun River area in Montana were again relocated to the McClelland-Stafford Ferry area of Fergus County. The population introduced at the McClelland-Stafford Ferry area has since grown and pioneered areas that include both sides of the Missouri River. In August 2004, this population had a minimum of 833 animals: 386 north of the Missouri River and 447 on the south side. The population appears to be healthy and expanding. Acres of bighorn sheep distribution are shown in Table 3.1 and displayed on Map H. Total acreage for the bighorn sheep lambing areas is also shown in Table 3.1 and displayed on Map I.

Great Blue Heron

Great blue herons are colonial nesters which nest and raise their broods in rookeries. This species will return to the same rookery year to year. Nesting herons are sensitive to human disturbance, which may cause them to abandon their eggs or young. Historical data cites at least two rookeries on the Missouri River, but these have been abandoned in recent years.

Fishes

Forty-eight species of fish reside in the Missouri River and its tributaries. The pallid sturgeon is endangered and five other species are considered to be special status species: blue sucker, paddlefish, sauger, sicklefin chub, and sturgeon chub.

Herptofauna

Reptiles and amphibians (collectively referred to as "herptiles" or "herptofauna") are sensitive to habitat conditions and changes, as well as changes in wildlife community composition and abundance.

Reptiles and amphibians serve as valuable bioindicators of ecosystem health (Lind 1996). Some amphibian populations in Montana have recently undergone, or are currently undergoing declines and extinctions (Carey 1993, Reichel and Flath 1995). Direct and indirect impacts from a variety of human activities may affect the viability of reptile and amphibian populations in Montana (Joslin and Youmans 1999).

The tiger salamander is the only salamander occurring in the Monument. The woodhouse toad, western chorus frog, and the northern leopard frog all occur in the area. Of concern are the northern leopard frog populations, which appear to be in a sharp decline. Spiny soft-shell and snapping turtles occur and are listed as sensitive species. There is concern that concentration of livestock in soft-shell turtle nesting areas may impact nesting success. The short-horned lizard is also known to be present. Other species could be present within the Monument, but extensive surveys have not been done.

Special Status Species

Special status species include sensitive, state-listed, and federally proposed, listed, and candidate species. See Appendix L.2 for a listing of threatened, endangered or candidate species, and BLM designated sensitive species within the Monument.

BLM sensitive species are those designated as sensitive by a BLM State Director, usually in cooperation with the state agency responsible for managing the species and state natural heritage programs. Sensitive species are those species that: (1) could become endangered or extinct from a state, or within a significant portion of its distribution; (2) are under status review by the U.S. Fish and Wildlife Service (USFWS); (3) are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution; (4) are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or state-listed status may become necessary; (5) typically have small and widely dispersed populations; (6) inhabit ecological refugia or other specialized or unique habitats; or (7) are state-listed but which may be better conserved through application of BLM sensitive species status.

State-listed species of special concern are listed by a state in a category implying, but not limited to, potential endangerment or extinction and listing is by either legislation or regulation.

Proposed species are species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior and a proposed rule has been published in the Federal Register. Candidate species are designated as candidates for listing as threatened or endangered by the USFWS and have been published in the Federal Register. Listed species are those listed as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act, and a final rule for the listing has been published in the Federal Register.

Greater Sage-Grouse (Sensitive Species)

Greater sage-grouse have decreased in numbers but still inhabit the areas they have occupied for decades. Grouse populations in marginal areas of their range have been drastically reduced or eliminated. Sage-grouse are closely associated with sagebrush. In areas where sagebrush has been eliminated, the sage-grouse has also been eliminated.

Sage-grouse, which are considered sensitive and a species of potential concern, have decreased in numbers throughout their range (Montana Sage Grouse Work Group 2005); however, in many areas outside the Monument sage-grouse populations have stabilized or increased in recent years. Faltering sage-grouse populations can be attributed to a number of different factors. Habitat fragmentation and habitat condition are the primary factors which the BLM can manage or manipulate.

In eastern Montana, where close interspersions of wintering, nesting, and brood-rearing habitat rarely requires large seasonal movements, sage-grouse are essentially non-migratory. The importance of sagebrush to sage-grouse is well documented. The seasonal habitats listed below are important for survival of sage-grouse (Montana Sage Grouse Work Group 2005).

Breeding Habitat

Strutting grounds, or leks, where breeding actually occurs, are key activity areas and most often consist of clearings surrounded by sagebrush cover. Findings from research in central Montana reported a sagebrush canopy cover at feeding and loafing sites near leks of 20% to 50% with an average of 32%.

Nesting Habitat

Sage-grouse invariably prefer sagebrush for nesting cover, and quality of nesting cover directly influences nest success. Successful nesting requires concealment provided by a combination of shrub and residual grass cover. Sage-grouse most frequently select nesting cover with a sagebrush canopy of 15% to 31%. Research findings in central Montana suggest that about 67% of nests occur within 2 miles of a lek (Montana Sage Grouse Work Group 2005). A recent and as yet unpublished graduate study in northcentral Montana by Brendan Moynahan (2004, University of Montana) suggests that 60% of nesting occurs three miles or more from breeding leks (Moynahan, B. Personal communication).

Although only two known leks occur on BLM land in the Monument, 11 leks are located within 2 miles of the

Monument and therefore, may include potential nesting areas on BLM land.

Brood-Rearing Habitat

Research in central Montana indicated that sage-grouse broods prefer relatively open stands of sagebrush during summer, generally with a canopy ranging from 1% to 25%. As palatability of forbs declines, sage-grouse move to moist areas that still support succulent vegetation.

Winter Habitat

Sage-grouse generally select relatively tall and large expanses of dense sagebrush during winter. Wintering areas in central Montana include sagebrush stands on relatively flat sites with a 10% to 30% sagebrush canopy coverage with a normal height relative to site potential. Areas exceeding 30% may provide important habitat during deep snow events (Montana Sage Grouse Work Group 2005). Table 3.1 shows total acres of crucial winter habitat. The areas are displayed on Map J.

Black-Tailed Prairie Dog (Sensitive Species)

Lewis and Clark, while on their famous journey up the Missouri River in 1804, noted that this “wild dog of the prairie ... appears here in infinite numbers.” In the past, poisoning and loss of habitat reduced most prairie dog colonies to small, fragmented colonies. Together with plague, continued poisoning and unregulated shooting, the destruction and adverse modification of habitat may act upon fragmented populations to threaten the continued existence of the species.

In February 2004, the USFWS concluded that this species does not warrant listing under the Endangered Species Act. Several small prairie dog towns occur within the Monument. Total acreage for prairie dog towns is shown in Table 3.1.

Since 2002, the shooting of black-tailed prairie dogs occupying BLM land within the State of Montana is closed during the months of March, April and May. This seasonal prairie dog shooting closure does not apply to state or private lands.

Bald Eagle (Threatened Species)

Status and Distribution

In 1978, the USFWS designated the bald eagle an endangered species. The bald eagle was reclassified as a threatened species in 1995.

Life History and Habitat Requirements

Nest building, courtship and egg-laying usually take place in February through the middle of April. Hatching and rearing of young generally takes place from early May to mid-August. Fledging generally occurs from mid-June through mid-August. (BOR 1994).

Nests are generally located in forest stands larger than 3 acres with a moderately open canopy. Nests are generally located within 1.6 kilometers (one mile) of bodies of water that are generally at least 32 hectares (80 acres) in size. Territories and nests are usually used repeatedly, some for over 80 years (Magaddino 1989).

Wintering habitat includes perching and roosting sites located near open water or in areas with ample carrion (e.g., big game winter range). These sites are not as sensitive to human disturbance as nest sites; however, continual disturbance in wintering areas may result in displacement.

Reasons for Decline

Declines in bald eagle populations have been linked to poisoning, human disturbance, loss of nest trees (cottonwoods), shooting, and use of the pesticide DDT.

Occurrence

Three active bald eagle nests are known to occur. The Evans Bend nest site is located approximately 11 kilometers (7 miles) downstream of Fort Benton; the Loma nest site is approximately 1.6 kilometers (1 mile) southeast of the town of Loma; and the Little Sandy nest site is located approximately 5 kilometers (3 miles) downstream of Coal Banks Landing (BLM 1986a). A fourth nest was initiated in 2004 at the confluence of the Judith and Missouri Rivers, but failed before fledging occurred. Suitable habitat may exist to support additional bald eagle nests on the river, but as cottonwood galleries age and are not replaced, additional nesting sites may be limited or reduced in the future. In addition to the active nest territory, eagles are known to winter in the Monument, feeding primarily on fish, carrion and waterfowl.

Pallid Sturgeon (Endangered Species)

Status and Distribution

The USFWS listed the pallid sturgeon as an endangered species in 1990. The current distribution of the pallid sturgeon in Montana includes the Missouri River between the mouth of the Marias River and Fort Peck Reservoir. Populations in Montana are comprised entirely of old, large fish, as there is no evidence of successful reproduction in at

least 25 years (Gardner 2002). The Missouri River population is thought to be comprised of only 50 adult fish and a small number of young hatchery-reared individuals (Gardner 2002). Information is not available to indicate distribution in Arrow Creek.

Life History and Habitat Requirements

The preferred habitat of the pallid sturgeon is the bottom of large, swift, turbid, relatively warm, free-flowing rivers (USFWS 1993a; Aderhold 1996).

Reasons for Decline

The construction of dams on the Missouri River is believed to be the primary cause of the pallid sturgeon's decline. Pallid sturgeon recovery is in its initial stages and consists of protection of the gene pool by stocking hatchery-reared fish and re-creating the important spring pulse of the Marias River, an important tributary. Many of these fish still reach sexual maturity, but no evidence of successful reproduction has been documented since monitoring of the pallid sturgeon began in 1990 (USFWS 1993a).

Geology

The Monument is a triangular wedge of land lying between three island mountain ranges. At the north apex of the triangle is the Bears Paw Mountain Range, on the east side are the Little Rocky Mountains, and to the west side are the Highwood Mountains. All of these ranges are places where magma rose up from the mantle penetrating a 2-mile thick layer of sedimentary rocks at various times during the Tertiary period. Figure 3.1 is a geologic map of northcentral Montana.

Figure 3.2 shows the sedimentary formations exposed along the Missouri River channel, which is the central geographic feature of the Monument. The Little Rocky Mountains are made up of plutonic igneous rock types while both the Bears Paw and Highwood ranges resulted from volcanic eruptions forming fine grained rocks near, or on the surface. The Bears Paw Mountains were covered by extensive heavy basalt layers. Over time, these slid away from the uplift deforming the near surface sedimentary rocks. The Bears Paw Mountain Arch is surrounded by a jumble of tilted sections of rocks that are covered with slightly younger volcanics. Between the Highwood and Bears Paw Mountains sedimentary rocks are tilted and shot through by radiating dikes that, when eroded, form spires and walls of dark igneous rock that contrast with the lighter sedimentary layers they intrude. The gravity sliding produced a lot of the thrust faulting that formed the structural traps for natural gas that is discussed in the oil and gas section of this chapter.

Following the mountain building events, the volcanic cones and much of the sedimentary rocks surrounding the Bears Paw Mountains were stripped away by erosion. Pediment and terrace deposits were formed in the foothills from the eroded material. During the last glacial age (50,000 to 10,000 years ago) continental ice sheets descending from the north were deflected east and west by the Bears Paw Mountains. The ice dammed the northward flow of the Missouri River and resulted in the formation of a new channel draining to the east into the Musselshell Valley and thence south to the Gulf of Mexico. It is this younger portion of the Missouri River channel that forms the area known as the Missouri Breaks.

Caves and Karst Resources

The Federal Cave Resources Protection Act of 1988 requires the BLM to document any cave or karst resources on BLM land. The geology within the Monument does not lend itself to the formation of caves, and there are no known sites within the Monument.

Locatable Minerals

Mineralization has been found associated with the veins and fracture zones near the margins of igneous dikes and intrusions. Over the years, the U.S. Geological Survey and the former U.S. Bureau of Mines examined various prospects and reported finding deposits that contain values for copper, lead, zinc, zeolites, uranium, niobium, zirconium, thorium, titanium, sulfur, tantalum, beryllium, lanthanum, cerium and vermiculite. These occurrences are estimated to be unrecoverable and marginal in value. Minor amounts of placer gold were discovered in gravel beds of coulees flowing out of the mountain areas. These were soon depleted and abandoned.

Some unique exposed igneous intrusions are up to a city block in size. The rock type resembles the material associated with the diamond-bearing kimberlite diatremes found in Africa and other places in the world. True kimberlite was found in Phillips County, but no diamonds have been discovered. Diamonds are extremely rare in outcrops of kimberlite. Sixty-three lode claims are located on these features (see diatremes on Figure 3.1). Surface sampling for indicator minerals of potential diamond-bearing zones and geophysical mapping have been conducted at these claims over the years, but no drilling or bulk sampling has been conducted. A recent discovery of diamonds in the Northwest Territory of Canada has increased interest in these deposits; however, any future plans to further explore the potential of these claims would be subject to the adjudication of valid existing rights that existed before the Proclamation date. No production of hardrock minerals is presently occurring. Table 3.2 lists unpatented mining claim locations.

Figure 3.1
Geology of Northcentral Montana

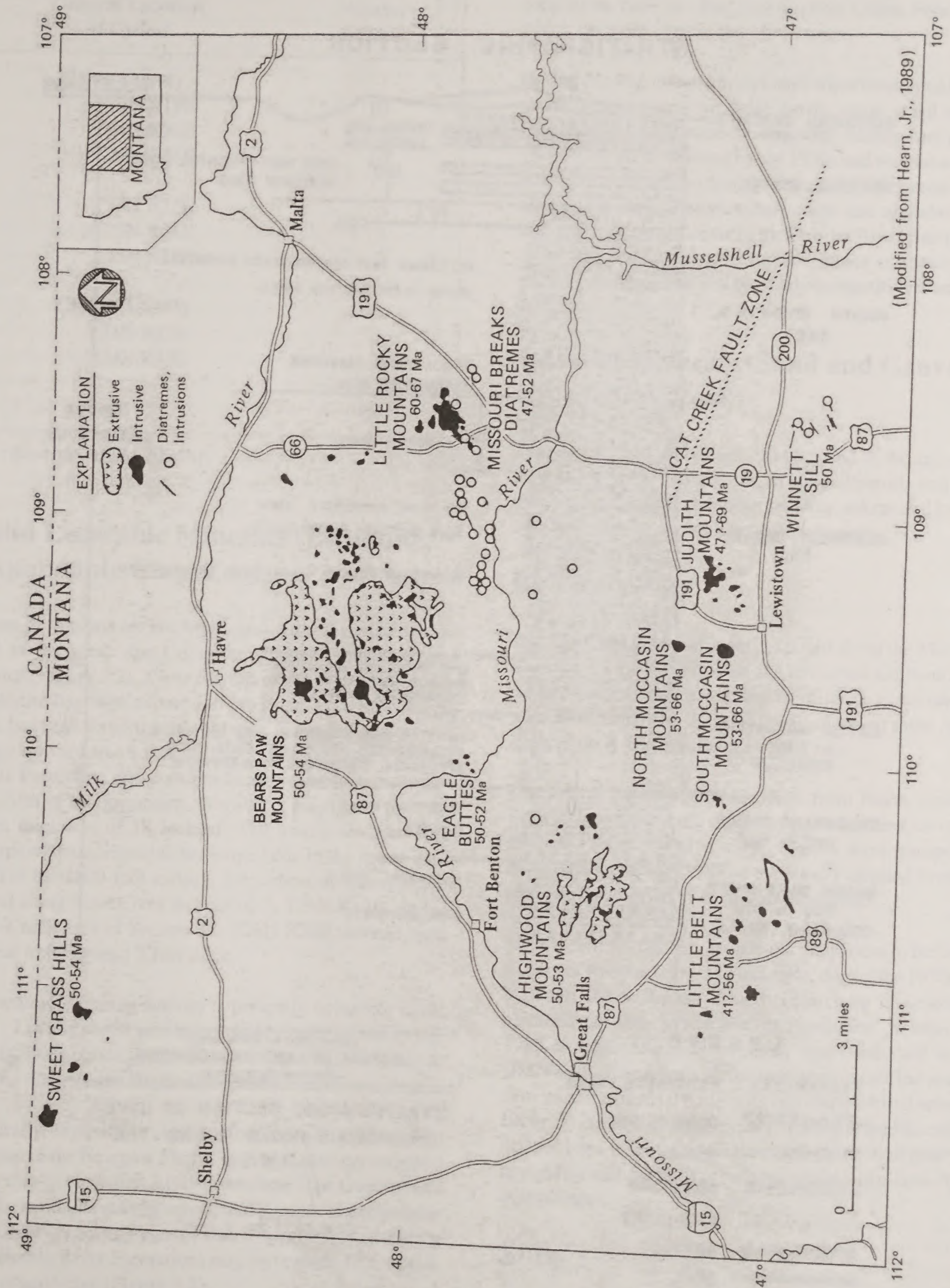


Figure 3.2
Geologic Formations

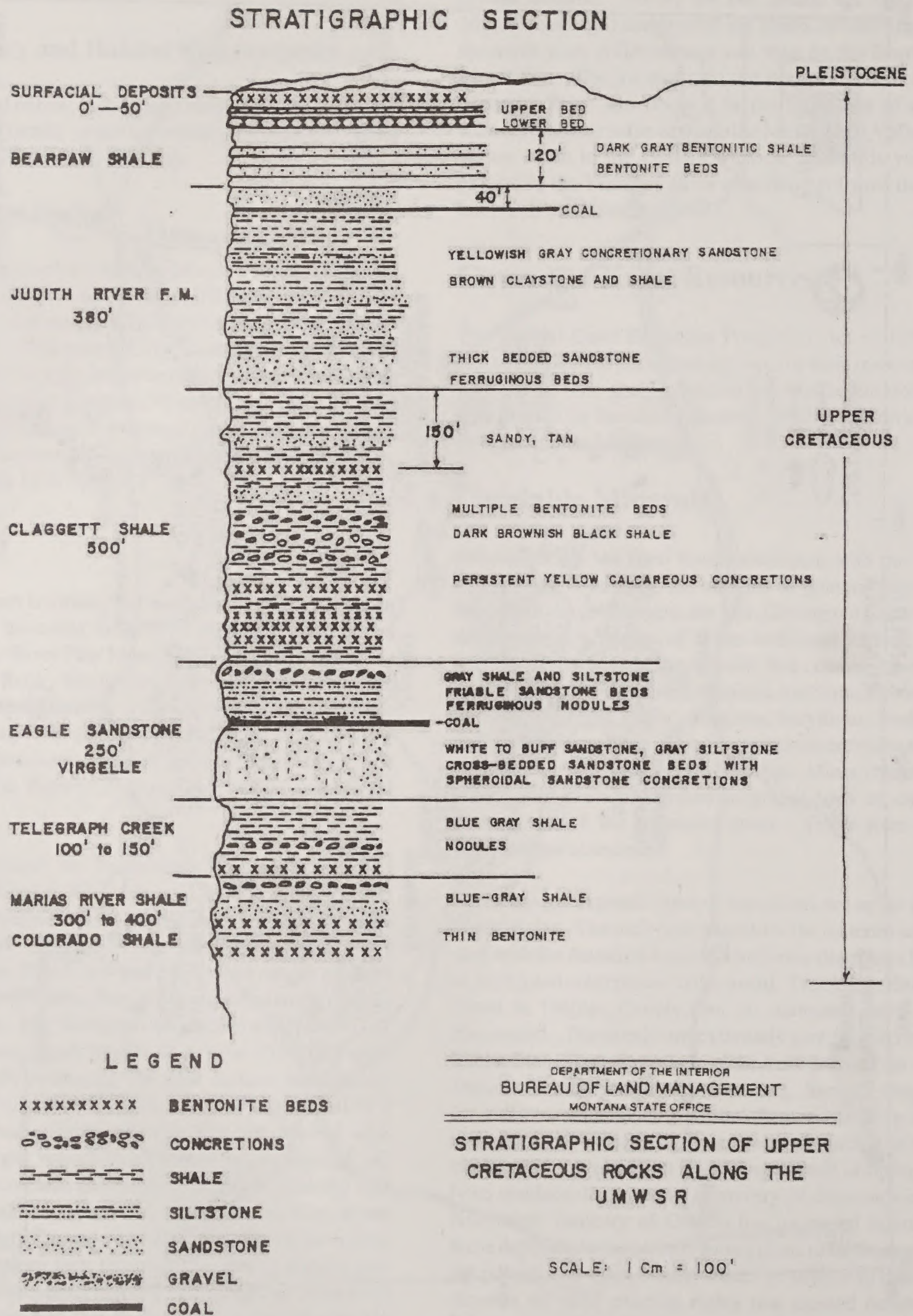


Table 3.2 Unpatented Mining Claims	
<i>General Location of Claims</i>	<i>Number of Claims</i>
Blaine County	
T24N R19E	10
T24N R20E	25
T24N R21E	10
T24N R22E	5
T25N R21E	3
T25N R22E	2
Phillips County	
T24N R22E	1
T24N R23E	7
Total	63

Source: (BLM 2004b)

Solid Leaseable Minerals (Bentonite, Expandable Clay, Coal)

Three formations are known to carry thick layers of bentonite in the area: the Colorado, Claggett, and Bearpaw Shales (Figure 3.2). Near the top of the Colorado Shale, bentonite has been exposed in the Bears Paw Mountains. The beds are located in the Marias River Formation and range upward to 18 inches thick. The younger Claggett Shale Formation also contains bentonite beds in the lower one-fifth of the formation. Similarly, these have a maximum thickness of 18 inches. The youngest formation, Bearpaw Shale, contains bentonite beds in the lower one-third of the 1000-foot section. Exposures of bentonite are found along Sand Creek in Section 5, T25N R17E. In the Al's Creek area in Section 32, T26N R20E, several beds appear to be at least 2 feet thick.

No bentonite mining activity is presently occurring in the area. Locally, bentonite has probably been mined to line canals, stock ponds and reservoirs in the area. No leases or mining claims exist for these deposits.

Generally, expandable clay was found to occur throughout the area in the Bearpaw Shale Formation, and ceramic and brick clay in the Judith River Formation. The same area as that for bentonite may be considered an area for expandable clay (lightweight aggregate); also, the same area as that for coal (Judith River Formation) may be considered for brick and ceramic clay (Figure 3.2).

Coal occurs in the sedimentary rocks of the Upper Cretaceous Eagle, Judith River and Hell Creek Formations, and in the Fort Union Formation of Tertiary age. The most continuous beds are found in the Fort Union Formation, which does not exist in the Monument.

During the steamboat era, and later when numerous homesteads were located on these lands, some small underground coal mines were developed to satisfy fuel needs. These were all abandoned by the 1930s and no coal activity is present today. The limited reserves of this area, combined with high transportation costs and abundance of higher BTU-content coals in the Powder River Basin, Fort Union Basin and Alberta, Canada, make it appear very unlikely that this area will be of any competitive interest in the future.

Saleable Minerals (Sand and Gravel and Quarry Rock)

Supplies of sand and gravel can be found in the area from deposits of water-worked till, in stream gravels and river terraces, and in glacial deposit features, eskers and kames. No active pits or quarry sites currently exist.

Paleontology

The Cretaceous age sediments exposed along the Missouri River Breaks are both marine and terrestrial sediments that contain fossil remains ranging from large vertebrates to extensive shell beds. Several publications on these specimens attest to the importance of the area.

The first dinosaur bones described from North America were collected from the region by a government survey in the mid-1800s. Most of the specimens were transported downriver on steamboats and eventually shipped overseas and are now housed in European museums.

More recent researchers broadened their focus to include a variety of fossil groups. For example, during the 1970s the Missouri River Breaks hosted researchers interested in mammal and shark systematics and evolution. In 1984 and 1985, a paleontological inventory was conducted in the UMNWSR. The results of that inventory identified several sites where terrestrial bone beds and marine fossil remains occur. The area surrounding the river inside the Monument has not been inventoried. These lands have high potential to yield significant finds of both terrestrial and marine fossil assemblages.

Soils

Soils developed primarily from sedimentary bedrock (approximately 70%) that was deposited during the Upper

Cretaceous periods and from lesser amounts of glacial till (approximately 5%) and mixed alluvium (approximately 25%). Soils are generally fine textured, well drained and slowly permeable. Landforms range from broad rolling ridges to steep (20% to 60% slope) or very steep (>45% slope) dissected valley walls. These sedimentary break landforms were formed as a result of the Missouri River being rerouted by continental glacial activity during the Pleistocene Epoch.

Detailed soil surveys have been published by the Natural Resources Conservation Service (NRCS) for Blaine-Soil Survey Area (SSA) 608 (USDA-NRCS, 1986), Choteau-SSA 615 (USDA-NRCS, 2003), Fergus-SSA 027 (USDA-NRCS, 1988) and Phillips-SSA 641 (USDA-NRCS, 2004). These soil surveys were performed by the NRCS according to National Cooperative Soil Survey standards and were done at the second and third order of detail. Pertinent information for review and analysis is from the published Soil Surveys and the National Soils Information System (NASIS) database for the area. For each soil mapping unit, interpretive ratings and soil characteristics are provided that can be used for general land-use planning and management. Soil investigations should be done at the site-specific level to determine the suitability of soils at specific locations.

Appendix M lists the Soil Survey Geographic (SSURGO) soil mapping units on BLM lands, including acreages. The soils map is available on the BLM website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm. For each soil series, general soil characteristics and associated ecological sites are listed. Those series with severe water or wind erosion hazards, hydric soil or prime farmland soil are noted on the table.

Severe water erosion hazards for each Soil Mapping Unit (SMU) were identified using the k-factor, T factor, permeability and slope percentage assigned to each SMU. These values are available in the soil characteristic tables in the soil surveys, published by the NRCS. The k-factor is the soil erodibility factor which quantifies the susceptibility of erosion. The T factor is the maximum average rate of erosion at which the quality of a soil as a medium for plant growth can be maintained. The rate is in $\text{tons} \cdot \text{acre}^{-1} \cdot \text{year}^{-1}$. SMUs with a k-factor of .32 and greater and slopes greater than 15% are considered to be susceptible to water erosion when soils are devoid of vegetation and bare. Using these criteria, there are approximately 309,320 acres, or approximately 83%, identified as being susceptible to severe erosion on BLM land.

Severe wind erosion hazards for each SMU were identified by using the Wind Erodibility Group (WEG) assigned to each SMU. WEG is a grouping of soils that have similar properties affecting their resistance to soil blowing. Soil texture, organic matter content, calcium carbonate percent-

age, fragment content and aggregate stability are the most important properties with respect to soil blowing. There are nine groupings: 1, 2, 3, 4, 4L, 5, 6, 7 and 8. The lower the number, the greater the risk of wind erosion. These groupings are also available in the soil characteristic tables in the Soil Surveys, published by the NRCS. SMUs with a WEG of 4L and less are considered susceptible to wind erosion. Wind erosion increases when vegetation is removed and soils are bare.

Sedimentary Soils

Sedimentary soils developed in clayey, calcareous or acid shales, siltstones and sandstones of the Bearpaw, Judith River, Clagget and Eagle Sandstone Formations. These soils are fine textured, high in smectitic 2:1 clays, and very shallow (<10 inches) to moderately deep (20 to 40 inches). Where high sandstone ridges occur, soils are loamy or sandy. These sedimentary soils are highly erosive because of their steep to very steep (20% to 65%) slopes and extreme physical properties such as high clay content, slow permeability, very high surface runoff, relatively shallow depth to bedrock and sparse vegetative ground cover. Soils are generally low in organic matter and high in sodium and soluble salts.

Active geologic erosion is observed throughout the Monument. This process can be accelerated by surface disturbance, especially on steep and very steep slopes when the protective vegetative cover is removed. Soil erosion is a natural process that occurs on all land surfaces. Soil erosion should only be viewed as detrimental when the rate of erosion decreases site productivity or when water quality is degraded. Mass soil movement is also a naturally occurring process; it too can be accelerated by surface-disturbing activities (cutting roads into hillsides dominated by clays over shale). Soil rutting and compaction become severe during moist and wet soil conditions. Rutting hazards are high due to the low soil strengths.

Glacial Till Soils

These soils are located on nearly level to rolling (1% to 15%) slopes and are typically very deep (>60 inches). Textures are loamy to clayey. Erosion is slight to moderate due to the relatively gentle rolling topography, short slope lengths and prominence of dense sod-forming vegetation. When disturbed, water and wind erosion hazards increase.

Alluvial Soils

These soils are on nearly level to undulating (0% to 8%) slopes along floodplains, stream terraces, alluvial fans and footslopes. They are important because of their high vegetative production potential. Soil properties are variable and can differ over short distances. These soils range

from sandy to clayey, poorly drained to well-drained, and slightly to severely erosive. Erosion increases when soils are compacted and vegetative cover is disturbed. Hydric soils exist, although they are not extensive. Hydric soils are defined as soils that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil (Federal Register, 1994).

Prime Farmland

The BLM land includes 2,319 acres of prime farmland soil mapping units (designated by the USDA-NRCS). Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks. Its soils are permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods of time, and it either does not flood frequently during the growing season or is protected from flooding (USDA-NRCS, 2003).

Sedimentation

Natural geologic erosion is accelerated when a geomorphic threshold is exceeded. The threshold most often exceeded is destruction of vegetation/ground cover. The Missouri River above Fort Peck dam drains the entire Breaks region. Sediment studies conducted in Fort Peck reservoir revealed a 298% increase in average annual sediment load over the past thirty years (Corps of Engineers 1989). The increase may be an indication that the vegetation/ground cover threshold is being exceeded. Though the Monument is only a small fraction of the watershed that drains into Fort Peck reservoir, it is still a highly erosive landscape that can be contributing to sedimentation of the Missouri River and Fort Peck reservoir.

Vegetation – Native Plants

Vegetation is a mixture of communities from the northern prairies and plains to the badland Breaks. Variability in geology, topography, soils, and effective precipitation lead to a complex mosaic of different vegetation communities and transitions between communities. In addition, influences of fire (or lack of fire), animal populations, and management practices have led to varying successional levels within plant communities.

Forest and Woodlands

The four main forest types are: Douglas-fir, juniper, ponderosa pine and mixed hardwoods.

Douglas-fir is commonly found on the cooler and wetter aspects (northerly and easterly).

The juniper forests are found mostly on dry, rocky sites.

The ponderosa pine forest exists in scattered pockets throughout the Monument on all aspects and elevations. These forests are considered more savanna types, rather than open forest, with the break point being sites that are not capable of producing at least 25% canopy coverage.

The mixed hardwoods, known as riparian forests, are characterized with stands of cottonwoods, aspen, chokecherry and box elder. See the Vegetation - Riparian section of this chapter for a more complete description of riparian communities.

Rangelands

Badlands

Much of the Monument consists of badlands and Breaks. The Breaks consist of steep, rugged topography interspersed with benches and rolling hills. Badlands support little vegetation because of steep terrain, shale and rock outcroppings, and the abundance of heavy clays.

Grassland Communities

Grassland communities are found on a variety of sites. Common species include western and thickspike wheatgrass, needle-and-thread grass, bluebunch wheatgrass, green needle grass, Sandberg bluegrass, plains reed grass, inland salt grass, blue grama, prairie junegrass, and threadleaf sedge.

Sagebrush/Grassland

Sagebrush/grassland communities occur throughout the Monument on ridges and slopes. The conspicuous species is Wyoming big sagebrush with wheatgrasses, but also include silver sagebrush, rabbit brush, needle grasses, blue grama, fringed sagewort and other mixed prairie species. These communities are in various successional stages from influences of wildlife, livestock, fire (or lack of), and human activities. They account for most of the forage resources that wildlife and livestock use.

Other adapted shrubland communities occur in areas where particular site characteristics are present.

Where soils are of better quality and soil moisture conditions are favorable, woody draw shrubland communities exist. These communities include chokecherry, currant, buffalo berry, and snowberry. These communities are particularly important to wildlife species.

Crops

The farming of crops is authorized in three locations on BLM land. Under a special use permit, some farming occurs on approximately 650 acres of 1,300 acres acquired by BLM in the Loma area that is part of an upland bird project. In the benchlands upriver from Steamboat Rock and outside of the UMNWSR, some old agricultural trespass has occurred (approximately 100 acres) on BLM land. This area is being prepared for re-establishment of perennial native species. At the James Kipp Recreation Area, 45 acres are farmed as part of a weed management program. With these exceptions, no farming occurs on BLM land.

Standards for Rangeland Health, especially Standards 1, 2 and 5, directly correlate to vegetation. A detailed description of the Standards for Rangeland Health is found in Appendix H.

Threatened, Endangered, and Sensitive Plant Species

No populations of federally listed plant species are found in the Monument. However the Montana Natural Heritage Program lists hot spring phacelia (*Phacelia thermalis*), subterranean Indian breadroot (*Pediomelum hypogaeum*) and persistent-sepal yellow-cress (*Rorippa calycina*) as plant species of concern in the area of the Monument.

Vegetation – Riparian

Wetlands are transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface or land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following attributes: (1) at least periodically, the land predominantly supports hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season each year (BLM 1986b).

Riparian areas are those areas within wetlands geographically delineated by distinctive resource values and characteristics that are comprised of aquatic and riparian ecosystems. Riparian areas may be associated with lakes, reservoirs, estuaries, potholes, springs, bogs, wet meadows, and ephemeral, intermittent, or perennial streams. Hansen (1989) described approximately 8,000 acres of riparian

habitat existing along the Missouri River in the Monument area.

Vegetative species common to riparian areas vary widely from site to site. Appendix N lists the more common species which occur in riparian areas.

Riparian communities along the perennial drainages and larger intermittent streams are often dominated by cottonwood and willow with occasional stands of green ash and box elder. The understory often consists of woody plants such as chokecherry, buffalo berry, sumac, currant, grasses, and forbs. The higher terraces adjacent to the floodplains are often dominated by silver sage or greasewood with a grass understory.

Many of the wildlife species found in the Monument area spend part or all of their life cycle in these riparian areas (Hansen, 1989). Riparian areas also protect the soil from erosion and trap runoff to release later as streamflow. Their importance cannot be overemphasized.

Vegetation within riparian areas is utilized mainly by livestock, mule deer, whitetail deer, elk, and ringnecked pheasants. This vegetation type is the primary habitat on BLM land for whitetail deer, mourning doves, and pheasants due to its dense understory. These riparian areas are extremely important for neo-tropical and other migratory birds (Scott, et al., 2003). Many migratory birds are present in this type. In fact, a wider diversity of non-game species occurs within this vegetation type than in any other.

The riparian areas generally are not meeting BLM's goals of proper functioning condition. Riparian areas along the Missouri River are being impacted by flow regulation from upstream dams and continuous hot season grazing. Riparian areas on the tributaries to the Missouri River are being impacted by irrigation withdrawals and continuous hot season grazing. Riparian areas that are affected by upstream dams and irrigation diversions outside the Monument may never be able to achieve proper functioning condition.

Recent studies by the U.S. Geological Survey (Scott and Auble, 2002 and Scott and Auble, 1998) and Hansen (1989) show a significant lack of regeneration of cottonwood, willow, and understory species on the Missouri River. From Coal Banks Landing to Woodhawk Campground, no sapling or pole stage cottonwoods occur on BLM land bordering the Missouri River except on islands. These studies indicate the major factors affecting regeneration are flow manipulation by upstream dams on the Missouri River and continuous hot season use by livestock.

Hansen (1989) suggests that one acre of seedling/sapling/pole stage cottonwood trees be present for every acre of mature trees to maintain the current status of mature trees.

Less than this one-to-one ratio indicates that if current trends continue, there will be a reduction in the acres of mature cottonwoods in the future. On all land (BLM, state and private) in the wild and scenic segments of the Missouri River, there are presently 4,450 acres of seedling/sapling/pole cottonwoods and 5,893 acres of mature cottonwoods. On just the BLM land in this stretch, the ratio of replacement cottonwoods to mature cottonwoods appears to meet the criteria of the one-to-one ratio. However, the reach of the Missouri River from mile 41 to mile 127 has no sapling/pole stage cottonwoods except on islands.

This discussion examines the current status of cottonwoods on the wild and scenic segments of the Missouri River. It does not consider the acres of cottonwoods removed by past practices such as agriculture, intense grazing, or wood cutting. Therefore, the total acres of cottonwoods currently found along the Missouri River represents a fraction of what would be there if these past human-induced disturbances had not occurred. Hansen (1989) estimates that approximately 50% of the acres occupied by cottonwoods at the time of the Lewis and Clark Expedition are now gone.

Vegetation – Noxious and Invasive Plants

The Monument has seen a significant increase in the amount and distribution of noxious weeds and invasive plants along the Missouri River and many of its major tributaries in the past two decades. Efforts to control noxious weeds along the river have included herbicide treatments, hand pulling, and prescribed fire treatments used to increase the effectiveness of herbicides and enhance the establishment of biocontrol agents, which have been released to control a wide variety of weed species.

From 1999 to 2002, the BLM surveyed the UMNWSR and found that every river bottom has at least one noxious or invasive plant established. In total 19 noxious/invasive plant species occupy over 550 acres. The noxious and invasive weeds map is available on the BLM website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm.

River bottoms and cut banks contain the majority of infested acres. This is attributed to the many natural disturbances common with river systems such as: flooding, ice jams/scouring, and fluctuating surface water levels. These areas are also well used by livestock, wildlife, and people that can potentially create additional disturbance and/or supply noxious/invasive plant seed from other areas.

All of the recreational use areas within the UMNWSR are infested with at least three species of noxious/invasive plants. These areas are at further risk with the potential for movement of seed and plant material from site to site in the clothing, gear, and pet fur of the many visitors to these sites.

The potential for the introduction of noxious/invasive species that are not currently present is also greater at these sites due to human activities. See Appendix O for a list of noxious/invasive plant species at recreation sites.

Although documented infestations occur in a few areas, most of the upland areas are relatively free of noxious/invasive plants. Areas in these off-river sites that would be most at risk for invasion or may currently be infested are: roads, trails, wildlife/livestock gathering areas, riparian areas associated with springs or non-perennial streams, areas that see measurable recreational use and any areas experiencing natural or manmade disturbance.

All six of the Wilderness Study Areas (WSAs) have infestations of several species of noxious/invasive plants. Most of these infestations are along areas near the Missouri River. Upland portions of these areas are monitored regularly as required by the Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM Handbook H-8550-1).

Many non-native plant species occur and are commonplace across the State of Montana. Many of these species are considered naturalized plant species. These species have a very wide distribution in the United States and some are found throughout the world. Most of these plants have undesirable qualities, but are so widespread that they are tolerated in most management practices. Some examples include yellow sweet clover, Kentucky bluegrass, timothy, smooth brome, crested wheatgrass, and kochia.

Visual Resources

The original inventory of visual resources was completed in two phases. The area mostly south of the Missouri River was done in 1979 with the Missouri Breaks Environmental Impact Statement (EIS) (BLM 1979). The visual data for the remaining area north of the Missouri River was associated with the Prairie Potholes EIS project in 1982 (BLM 1982). Both of these projects were located within what was formerly the Lewistown District Office.

The inventory was undertaken to evaluate the visual characteristics of land, water surface, vegetation, and structures which provided the subsequent delineation of scenic quality, sensitivity to changes in the visual landscape, and distance zones. These three categories were factored together in a matrix (BLM Manual 8410) to determine Visual Resource Management (VRM) Classes I through IV for individual geographical areas. The VRM Class I areas are the most restrictive and Class IV areas are the least restrictive. Table 3.3 shows the total acres for each class.

A new visual resource inventory for the VRM Class III and IV areas in the Monument was completed in 2004. This

new inventory is addressed in Chapter 2 through alternatives for changing the current VRM classes.

Table 3.3
Visual Resource Management Classes

<i>VRM Class</i>	<i>Acres</i>
Class I	61,700
Class II	118,800
Class III	8,200
Class IV	186,300

VRM Class I

The VRM Class I areas include the wild segments of the Missouri River. A VRM Class I rating is intended to preserve the existing character of the landscape. It provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention to the casual observer.

This visual category includes 61,700 acres, or 16% of the BLM land. It includes the Bodmer¹ cultural landscape areas in the UMNWSR.

VRM Class II

The VRM Class II areas are associated with the Scenic and Recreational segments of the Missouri River, the lower portions of the Arrow Creek and Judith River watersheds, Black Coulee west of Ragland Bench, and the six WSAs (Dog Creek South, Stafford, Ervin Ridge, Woodhawk, Cow Creek, and Antelope Creek). The VRM Class II rating is intended to retain the existing character of the landscape. Management activities may be seen but should not attract the attention of the casual observer (viewer). The level of change to the characteristic landscape should be low. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the landscape.

This visual category includes 118,800 acres, or 32% of the BLM land.

VRM Class III

The VRM Class III areas are found in the uplands portion of the Monument. This rating is intended to partially retain the existing character of the landscape. Management activities may attract attention but should not dominate the view of the casual observer. The level of change to the characteristic landscape should be moderate. These changes should repeat the basic elements found in the predominant natural features of the area.

This visual category includes 8,200 acres, or 2% of the BLM land.

VRM Class IV

The VRM Class IV areas are also found primarily in the uplands portion of the Monument. This rating provides for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention.

This visual category includes 186,300 acres, or 50% of the BLM land.

Water

Ground Water

Ground water occurs in unconsolidated materials (alluvium, glacial outwash, or terrace deposits) and in consolidated rocks such as sandstones, shaley sandstones, coal, limestone, or igneous rocks.

Most of the BLM land along Arrow Creek and the Judith River lies above the floodplains on the Cretaceous age shales. No shallow aquifers are present for ground water development.

The Missouri River in the Monument area is a young river system in geologic terms. Floodplains are poorly developed or absent, reducing potential for ground water development. The adjacent Breaks are in the Bearpaw shale. The Bearpaw shale contains thin, widely scattered and isolated

¹ Karl Bodmer accompanied the expedition of Prince Maximilian in 1832-34 to gather information about lands acquired in the Louisiana Purchase and its people. Bodmer's role was to record the journey through illustrative drawings of the sites and people encountered along the way. The Bodmer landscapes are fan-shaped viewsheds associated with the illustrative drawings. The expedition traveled upstream on the Missouri River from St. Louis to Fort McKenzie (located between present-day Loma and Fort Benton, Montana).

sandstone stringers. Yields are seldom large enough for well development (less than 2 gallons per minute (gpm)), but several small springs and seeps do occur in the deeply incised drainages. Water quality is poor, with total dissolved solids (TDS) generally too high for domestic or livestock use.

The Breaks region is underlain by the Judith River and Eagle sandstones. Depths from the surface to these aquifers range from 700 to 2,500 feet. Most wells in these formations flow at the surface yielding 2 to 60 gpm. Water quality is suitable for livestock but generally not for domestic use.

Occasionally, aquifers are present at the contact between terrace gravel deposits and the underlying Bearpaw shale. These aquifers usually appear as low yield springs and seeps (less than 2 gpm) on hillsides above drainages. Water quality is generally suitable for livestock but not for domestic use.

No other shallow aquifers (less than 500 feet) exist.

Surface Water

Streamflow volumes differ greatly. Flows in all unregulated streams have large seasonal variations, with the largest flows generally occurring during the spring or early summer as a result of snowmelt and rainstorms. The Missouri and Judith Rivers are the only perennial streams in the Monument. Table 3.4 lists the perennial and intermittent streams. Numerous ephemeral streams also exist but flow only in response to snowmelt or intense summer storms.

Peak flows on prairie streams from snowmelt occur in March or April. Larger peak flows on small drainages can occur from intense summer thunderstorms, but generally not on an annual basis. Summer rainstorms can result in short intervals of increased streamflow during June through August.

During winter, streamflow in prairie streams is greatly reduced or absent as a result of little ground water inflow and ice formation.

Most precipitation is transpired, evaporated, added to soil moisture, or added to the supply of ground water. Average annual runoff is approximately 0.5 inches. Average annual precipitation ranges from 12 inches in the eastern part of the Monument to 14 inches in the western portion of the Monument (SCS 1977).

Surface water quality is variable depending on the geologic formations through which the water has passed and the volume of flow in the stream. Dissolved solids are derived primarily by the leaching of soluble minerals from soils and geologic formations underlying the drainage basin. The dissolved solids are composed largely of the cations calcium, magnesium, and sodium, and the anions bicarbonate, sulfate, and chloride.

Variations in the dissolved-solids concentration and composition in streams result primarily from changes in the amount and source of streamflow. During low flows, water in the streams is derived mostly from ground water sources and will reflect the dissolved-solids concentration and water type of contributing aquifers. During high flows, most of the water entering the streams is from precipitation

Table 3.4 Perennial and Intermittent Streams				
Name	Stream Status	Total Miles	No. Miles on BLM Land	Percentage on BLM Land
Judith River	Perennial	10.4	0.4	4%
Missouri River	Perennial	149	68	46%
Antelope Creek	Intermittent	14	6	40%
Arrow Creek	Intermittent	18	1.3	7%
Bull Creek	Intermittent	15	14	91%
Bullwhacker Creek	Intermittent	21	21	100%
Cow Creek	Intermittent	32	9.5	30%
Dog Creek	Intermittent	7	2	29%
Squaw Creek	Intermittent	10	10	100%
Woodhawk	Intermittent	13	12	98%

runoff. The relatively short period of time that the runoff is in contact with the soils of the basin provides little opportunity for the dissolution of minerals. Consequently, the increased volume of water during high flows reduces the dissolved solids concentration by dilution.

In addition to streamflow variability and geology, other factors that affect the dissolved solids concentration of a stream include irrigation return flows, saline seeps, and water losses from evapotranspiration. Dissolved solids concentrations during low flow range from 1,500 to 3,500 milligrams per liter (mg/l). At high flows, concentrations range from 500 to 1,300 mg/l. The predominant ion in these prairie streams is sodium sulfate.

Streams in the Monument area normally exhibit a pH between 6.5 and 8.5, typical of well-buffered natural waters. Most streams have generally large alkalinities, which provide a buffering capacity that prevents large changes in pH from persisting far downstream. Because of the near-neutral pH, concentrations of dissolved trace elements rarely exceed water quality standards.

Water Rights

The BLM will apply for water rights to water sources on BLM land under the same regulations as all other appropriators. The State of Montana began adjudicating water rights in the early 1980s. The BLM filed claims on all existing water developments and natural sources (springs, pot holes, lakes, etc.) occurring on BLM land. Table 3.5 lists water developments by type and quantity.

Table 3.5 Water Developments	
<i>Description</i>	<i>Quantity</i>
Pipeline (miles)	35
Reservoirs	95
Springs	4
Stock Tanks	32
Water Savers/Catchments	14
Wells	7

The BLM and the State of Montana entered into a compact for instream flow reservations on the 149-mile stretch of the Missouri River that comprises the UMNWSR. The compact recognized all valid, existing rights prior to December 31, 1987 and created an "available water supply," which is the volume of surface and ground waters available to meet the state's projected demands. All depletions from appropriations completed after December 31, 1987, shall be

subtracted from the available water supply. The state will not subtract from the available water supply groundwater uses of 35 gpm or less, not to exceed 10 acre-feet per year, and surface water appropriations of 35 gpm or less, not to exceed 10 acre-feet per year for domestic use.

The Monument Proclamation establishes a reserved water right for the Judith River and Arrow Creek. The BLM is currently developing a strategy to address the reservation. The reserved water rights process generally takes several years to complete. The reservation process will not be completed within the time frame of this plan.

Water Quality Impaired Streams – 303(d) List of Impaired Streams

The Environmental Protection Agency, in administering the Clean Water Act, requires all states to identify rivers, streams, lakes, and wetlands where beneficial uses are impaired or threatened by human activity, and to schedule those waters for development of water quality restoration plans. This process is known as the Total Maximum Daily Load (TMDL) process. Table 3.6 lists the impaired streams within the Monument that are on the Montana Department of Environmental Quality (DEQ) 2002 Draft 303(d) list.

Forest Resources

Forest Types

Four main forest types exist throughout the Monument area: ponderosa pine, Douglas-fir, juniper, and mixed hardwoods.

The ponderosa pine forest exists in scattered pockets on all aspects and elevations. Its ability to survive in this harsh environment is due, in part, to an aggressive tap root system. These forests are considered more "savanna" types rather than open forest, with the break point being sites that are not capable of producing at least 25% canopy coverage.

The Douglas-fir type is commonly found on the cooler and wetter aspects (northerly and easterly). The Monument area represents some of the driest sites that are still capable of growing Douglas-fir. Trees that do survive are very slow growing and short in comparison to Douglas-fir that occurs in mountainous regions of central Montana.

The juniper forests are found mostly on dry, rocky sites. These stands are not capable of producing 20 cubic feet per acre per year of wood fiber and, therefore, are not typically thought of as coniferous forests by themselves. They commonly occur with the ponderosa pine and Douglas-fir forests.

Table 3.6
Water Quality Impaired Streams

<i>Water Body</i>	<i>Probable Impaired Use</i>	<i>Probable Cause</i>	<i>Probable Source</i>
Armells Creek	Aquatic life support	Metals, pH	Resource extraction, subsurface mining
Arrow Creek	Aquatic life support, recreation, warm water fishery, drinking water supply, swimmable, agriculture	Flow alteration, nutrients, other inorganics, salinity/TDS/chlorides	Agriculture, irrigation, natural
Bullwhacker Creek	Recreation, warm water fishery, drinking water supply, agriculture	Salinity/TDS/chlorides, suspended solids	Agriculture, natural
Coffee Creek	Aquatic life support, warm water fishery, agriculture, drinking water supply	Nutrients, other inorganics, salinity/TDS/chlorides	Agriculture, natural
Dog Creek	Drinking water supply, agriculture	Other inorganics, salinity/TDS/chlorides	Agriculture, natural
Eagle Creek	Warm water fishery, aquatic life support, cold water fishery	Flow alteration, siltation	Agriculture, irrigation, range land
Fargo Coulee	Aquatic life support	Other habitat alterations	Agriculture, range land
Judith River	Aquatic life support, cold water fishery	Nutrients, siltation, suspended solids, other habitat alterations	Agriculture, irrigation, range land, silviculture
Missouri River	Warm water fishery, aquatic life support	Nutrients, other inorganics, pathogens, salinity/TDS/chlorides, suspended solids	Agriculture, irrigation, streambank modification
Sourdough Creek	Warm water fishery, aquatic life support	Other habitat alterations	Agriculture, range land
Two Calf Creek	Warm water fishery, agriculture, recreation, drinking water supply	Metals, nutrients, salinity/TDS/chlorides, suspended solids	Domestic waste water lagoon, natural

The mixed hardwoods, known as riparian forests, are characterized with stands of cottonwoods, aspen, chokecherry and box elder. These forests tend to be along the main river bottoms and wetter drainages feeding into the Missouri River. Disturbance is common in these forests due to a high site index leading to greater growth potential for all plants. The truly undisturbed sites exist mainly on islands that have not experienced recent fire.

State of Montana Forested Land

The Montana Department of Natural Resources and Conservation (DNRC) conducted an inventory on approximately 8,200 acres of state-owned forested land that falls within the Monument (BLM 2003b). Considering the random nature of the forested portions of state and BLM land, this inventory serves as an adequate random sampling of forested acres for BLM land.

Lands and Realty

The Monument contains those lands in north Fergus County adjacent to the Missouri River including the Armells Creek and Judith River drainages; southeast Chouteau County along the Missouri River and Arrow Creek drainages; south Blaine County along the Missouri River as well as the Lone Tree Bench, Cow Creek and Bullwhacker drainages; and southwest Phillips County including the Cabin Creek, Bull Creek and Antelope Creek drainages. The majority of the large blocks of BLM land are east of the Hole-in-the-Wall area and along Arrow Creek. At about the Ervin Ridge area, the BLM land is concentrated over a much wider area, especially on the north side of the river where it extends beyond the river over 15 miles in places. Land ownership in the Monument area is comprised of federal, state and private land (Table 3.7). The BLM has no jurisdiction over state or private land and these lands are not part of the Monument. Access in and to this area is dependent on the weather as roads can be impassable when it rains.

Access

Access to and within the Monument is provided to the public and private landowners alike by means of BLM roads, BLM easements across private land, state highways, and county roads. In addition, some private landowners have applied for and received rights-of-way (ROWs) across BLM land where needed to access their private land.

The 25 ROWs that currently exist are for roads and highways, electric lines, telephone lines, oil and gas pipelines, a communication site, and water-related facilities such as dams and ditches. See Appendix P for a list of the ROWs.

Land Ownership Adjustment

Since the UMNWSR was designated a Wild and Scenic River in 1976, over 6,800 acres of privately owned land and interest in land (conservation easements) have been purchased from willing sellers using the Land and Water

Conservation Fund. This Fund and land exchanges continue to be viable options for consolidating BLM land within the Monument.

Livestock Grazing

Currently, 93 livestock operators are licensed to graze within the Monument. These operators use 116 allotments and harvest about 38,000 Animal Unit Months (AUMs) of forage annually (Appendix Q). Cattle are the most prevalent class of livestock, although horses also graze some BLM land. Permitted horse use levels are very small in comparison to permitted cattle use.

A wide range of management approaches are practiced among the permittees that graze livestock. Some grazing permits are held by producers that are primarily involved in farming. In these cases, livestock are often grazed on BLM land during the summer and on private land stubble fields in the fall and winter. In some cases, small isolated tracts of BLM land are grazed in conjunction with private land because the intermingled land ownership pattern and terrain make it difficult to manage the BLM land separately from private land. In other cases, large blocks of BLM land are authorized to producers that are primarily involved in ranching. The larger blocks are usually managed under a grazing prescription that is outlined in a watershed plan or an allotment management plan that include private and state land and BLM land inside and outside of the Monument.

In 1997, an Environmental Impact Statement was written to implement Standards for Rangeland Health and Guidelines for Livestock Grazing Management. These Standards and Guidelines (Appendix H) were developed with assistance from the Central Montana Resource Advisory Council, local ranchers, and Montana State University. The Standards are ecologically based and focus on the structure, function, and health of the entire rangeland ecosystem. The Standards are divided into five categories: upland, riparian, water quality, air quality, and biodiversity (BLM 1997). Prior to the development of Standards for Rangeland Health,

Table 3.7
Land Ownership in the Monument Area

<i>Surface Ownership</i>	<i>Blaine County Acres</i>	<i>Chouteau County Acres</i>	<i>Fergus County Acres</i>	<i>Phillips County Acres</i>	<i>Total Acres</i>
Monument	150,239	40,386	131,355	52,683	374,663
State	9,509	5,146	20,823	3,304	38,782
Private	9,310	25,807	40,852	3,777	79,746
Total	169,058	71,339	193,030	59,764	493,191

rangeland management specialists focused primary on plant species composition and soil surface characteristics to determine rangeland condition.

Guidelines for Livestock Grazing Management describe grazing management methods and practices that are essential to the proper management of livestock on BLM land. In many ways, the guidelines are similar in approach to the Best Management Practices (BMP) developed by the State of Montana for various activities. A detailed description of the Guidelines for Livestock Grazing Management can be found in Appendix H.

Beginning in 1997, the BLM began assessing Standards for Rangeland Health and implementing guidelines for livestock grazing on a watershed basis in the Monument area. Eight watershed and grazing permit renewal areas were delineated and are in various stages of implementation. The rate of response to implementation actions prescribed in the plans varies depending on several variables including: site potential, off-site influences, weather, timeliness of project installation (when needed), livestock grazing, effectiveness of weed control measures, wildlife use, recreation use, etc. Where management actions have been implemented that address causal factors to improve riparian community health, success generally occurs fairly rapidly as is demonstrated in the photographs below for the Woodhawk Allotment. However, where causal factors are outside of direct management controls, progress may not be rapid or permanent. Progress in the uplands can be variable and take several years to validate. This can depend on weather, site potential and whether the management action is affecting the cause(s) of not realizing a management goal. Continued monitoring and adjustments made through an adaptive management strategy are the means of measuring success of management. There have been successes in terms of riparian community management on the Missouri River and more are yet to be realized as implementation proceeds. Upland resource values are being maintained and as implementation moves forward modest improvements in resource values are anticipated.

All allotments have been assessed for rangeland health. The watershed plans that have been written to improve rangeland health include:

- Woodhawk Watershed Plan (1998)
- Two Calf Watershed Plan (1998)
- Armells Creek Watershed Plan (2000)
- Beauchamp Watershed Plan (2001)
- Upper Missouri Watershed Plan (2002)
- Loma/Vimy Ridge Watershed Plan (2002)
- Arrow Creek/Upper River/Whiskey Ridge Landscape Watershed Plan (2004)
- Bears Paw to Breaks Implementation Plan (2005)



Site 7a 1997



Site 7b 2002

Woodhawk Allotment

Minerals – Oil and Gas

The oil and gas Monument study area lies at the southeastern extent of the Bearpaw Uplift in northcentral Montana (Figure 3.3 and Map 2-Side A). The area contains roughly 465 square miles in the Bullwhacker and Chimney Butte/Al's Creek Drainage areas including the existing oil and gas leases.

Appendix K and its attachments contain a great deal of information about oil and gas resources, both inside and outside of the Monument. Natural gas development outside of the Monument is a part of the larger oil and gas resource description. However, because of the volume, detail and supportive nature of much of this information it is better suited as an appendix item than in this section.

The 43 leases in the Monument were issued between 1967 and 1999. Twenty-six of the leases, which were issued on or prior to September 1, 1971, have no specific lease stipulations other than the standard lease terms and condi-

tions (Appendix K.1). The remaining 17 leases have some lease stipulations and the standard lease terms and conditions.

Until March 20, 1968, only two wells were drilled in or near the study area. A combination of factors impeded exploration efforts until the late 1960s. With the price of natural gas at 10¢/MCF, a lack of infrastructure in the area (roads and pipelines), and the region being mostly unexplored, natural gas remained undeveloped up until the early 1970s.

The study area is mostly within three producing fields known as the Leroy, Sherard and Sawtooth Mountain Gas Fields (Figure 3.3). Over the past 30 years, steadily rising natural gas prices have resulted in increased exploration and development; resulting in 139 wells being drilled in the Monument. See the inset box on the following page showing historical activity in these fields.

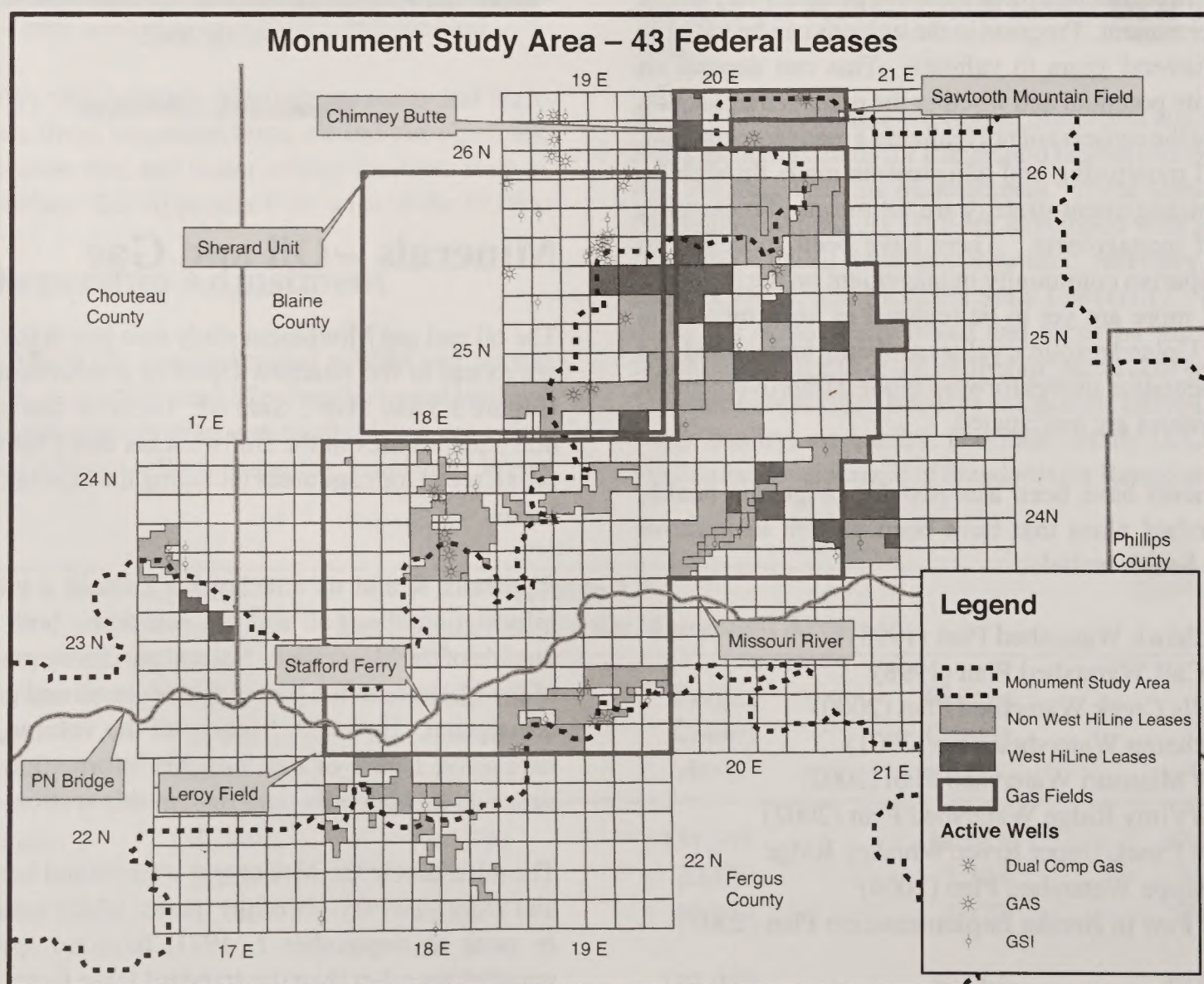
Three administrative instruments allow oil and gas exploration and development to occur in the Monument: the Oil and Gas Lease, the Communitization Agreement, and the Unit Agreement. The Monument currently includes 43 federal oil and gas leases. There are another three state oil

and gas leases in the area. These leases include 42,805 acres of federal minerals and 1,918 acres of state minerals (Appendix K.3). These leases can occur in a non-contiguous manner where the tracts of land are separated by some distance, and in some cases, the distance can be a matter of 4 to 5 miles. The majority of the leases (92%) are north of the Missouri River in Blaine County, and the remainder lie in Fergus and Chouteau Counties (5% and 3% respectively). None of the existing federal leases are within Phillips County.

The federal leases were issued under ten-year lease terms. Of the 43 leases in the Monument, 13 are within their primary ten-year term and the other 30 are held in their extended term by either allocated or actual production. Lease suspensions can also play an important role with the life of some of the leases. Of the 12 West HiLine leases, nine are currently under lease suspension until the Monument Resource Management Plan is finished and three are also under lease suspension pending a lawsuit.

Because there will be no future leasing within the Monument and the leases in the Monument will eventually terminate or expire, oil and gas leasing within the Monu-

Figure 3.3
Monument Study Area



Historical Natural Gas Exploration and Development in the Monument					
<i>Natural Gas Wells</i>	<i>Leroy Gas Field</i>	<i>Sawtooth Mountain Gas Field</i>	<i>Sherard Unit Area</i>	<i>Outside of Existing Fields</i>	<i>Total</i>
Drilled	42	2	12	83	139
Dry Holes (Abandoned)	29	2	9	82	122
Completed	13	0	3	1	17
Production	12	0	3	0	15
Shut-In without Pipeline	1	0	0	1	2
Completed Wells Plugged	5	0	0	0	5
Completed Wells Active	8	0	3	1	12
Production (BCF)	2.2	0	3.9	0	6.1

ment will eventually cease to exist. Once gas wells become depleted on the leases or agreements, the wells will be plugged and abandoned and the leases could terminate if no other wells were drilled on the leases. However, until the last productive well ceases to exist, the 43 lease(s) continue to have valid existing rights.

Since private land (surface and mineral ownership) is adjacent to the Monument, the likelihood of private oil and gas leases exists. The management of the federal surface or minerals largely has no bearing on activity on state or private minerals other than the authorization of future right-of-ways. With leasing closed within the Monument, this could indirectly affect the state and private mineral estates because of the removal of lands as a whole from the potential land base.

Leases can also be part of a Communitization Agreement (CA) and/or Unit Agreement. A CA is an agreement that provides an administrative method to develop the gas resources. CAs combine two or more mineral leases (federal, state and private) in order to have sufficient acreage to comply with the spacing required to drill and or produce a well. A CA is formed when a federal lease cannot be independently developed in conformity with an established spacing pattern.

Currently, there are 11 CAs within or straddling the Monument. Another 10 CAs lie outside of the Monument, yet are common to the Monument because a portion of the lease is common to both the CA and the Monument. Appendix item K.2 provides more information about the spacing requirements in these CAs.

In addition to leases contained in the CAs, two federal leases are also located in a Unit Agreement within the Monument known as the Sherard Eagle Participating Area (PA) "E." This unit PA was formed after the discovery of

a geologic feature in 1974. The 1,280-acre PA currently contains three active wells located within the Monument producing from the Eagle Formation.

Geology - Oil and Gas

The Bearpaw Uplift in northcentral Montana was formed by igneous activity which commenced in the late Cretaceous Period and extended into the early Tertiary Period (Eocene Epoch). A large mass of igneous material was intruded into sediments at the top of the Cretaceous Colorado Group. This action caused a doming effect of the overlying younger sediments on an elevational scale of thousands of feet. Concurrent with this doming effect on late Cretaceous strata was the eruption and deposition of thousands of feet of volcanic rocks in the form of lava flows and volcanic clastics. As a result of being uplifted, the late Cretaceous sediments were subject to extensive erosion, as well as being subsequently buried by the widespread deposition of volcanics.

Within the early Tertiary, a dramatic change came to the Bearpaw Uplift. Whether it was one titanic explosive event or a series of related events, the forces that caused the doming of the Bearpaw Uplift were suddenly removed by an enormous eruption, and the central portion of the Bearpaw Uplift collapsed. This collapse caused a wide variety of structural features, most of them fault-related. Just like a broken plate of glass, the Bearpaw Uplift broke into a mosaic of randomly oriented individual fault blocks where each fault block can have its own unique orientation and as a result can create its own separate gas trap/reservoir. Other tectonic features included gravity detachment blocks which slid away from the center of the dome.

Scattered through a circular zone 20 to 30 miles wide on the plains surrounding the Bears Paw Mountains are long, sharp, narrow, anticlinal folds (perhaps 100 or more),

usually cut near their crests by steeply dipping reverse faults. Strike of the folds and faults is peripheral to the circular mountain area. In cross-section, the folds and faults appear to have been caused by nearly horizontal thrusts outward from the mountains. The length of the folds differs greatly, but they average about 10 miles. Between folds, upper Cretaceous strata lie nearly horizontal and apparently undisturbed. The faults and folds and other structural features mapped at the surface are essentially “rootless” as they disappear within the sediments of the upper Colorado Shale. Nonetheless, the intensive faulting which affects the Eagle and Judith River sands provides an effective trap for the gas now produced from hundreds of wells within the Bearpaw Uplift.

The source rocks for the Cretaceous gas in this area are probably the kerogen-enriched black shales found in the Colorado Group. The effective upper seals for the Judith River and Eagle reservoirs are provided by the overlying Bearpaw Shale and Claggett Shale Formations respectively (Figure 3.2). The Bearpaw Shale has an average thickness of 1,300 feet where the Claggett Shale Formation has a thickness of at least 500 feet. Without question these source rocks have been buried deeply enough to generate hydrocarbons appropriate to their thermal maturity. Migration of hydrocarbons, in this case natural gas, would most likely occur along fracture planes developed within the Cretaceous shales and sandstones.

Leroy Gas Field

The majority of the existing federal leases lie within the Leroy Gas Field which was discovered in November 1968. The field as a whole is not one contiguous productive unit. Rather, it is made up of numerous discrete fault blocks that provide a series of reservoirs which have trapped gas within the subsurface strata. Each reservoir/trap in the Leroy Gas Field is unique (depth, reservoir pressure, pay thickness, porosity, water saturation, orientation, and gas/water content or extent); however, the reservoirs are common to one another since the majority of the wells produce from the upper Cretaceous Eagle Formation.

The Eagle Formation remains the primary target in the Leroy Gas Field for future exploration because of its relatively shallow depths (1,700 feet) and the chance of discovering additional gas-charged fault blocks. The Eagle Formation is composed of three distinct rock units. Depending on the structural orientation of the fault blocks within the Leroy Gas Field, the middle unit of the Eagle Formation is likely the most prolific formation to trap gas; however, if the conditions exist, the Virgelle Member (the lowermost unit of sandstone rock within the Eagle Formation) also can contain gas. The productive intervals can range from 4 to 60 feet thick.

The Judith River Formation (a shallower upper Cretaceous interval) can also be considered a target for development; however, unless there is a major gas discovery in the Judith River Formation, it will remain a secondary target for development. Future development of the Judith River Formation will likely be a result of searching for gas in the deeper Eagle Formation.

There are eight active wells in the Leroy Gas field. See the inset box showing current natural gas activity in the Monument.

Sawtooth Mountain Gas Field

The Sawtooth Mountain Gas Field lies at the very northern edge of the Monument. It is common to the Monument because two federal leases overlap the Monument and the Sawtooth Mountain Gas Field. Currently, no active Monument wells are within the Sawtooth Mountain Gas Field. The geologic characteristics of the Sawtooth Mountain Gas Field are similar in nature to those of the Leroy Gas Field.

Sherard Unit Area

The geologic characteristics of the Sherard Unit Area in the Monument are similar in nature to those of the Leroy Gas Field as a relatively short distance separates the fields. The first successful Sherard well was drilled in December 1974 and continues to produce.

Current Natural Gas Activity in the Monument					
<i>Natural Gas Wells</i>	<i>Leroy Gas Field</i>	<i>Sawtooth Mountain Gas Field</i>	<i>Sherard Unit Area</i>	<i>Outside of Existing Fields</i>	<i>Total</i>
Active Wells	8	0	3	1	12
Currently Producing	2	0	2	0	4
Shut-In with Pipeline	5	0	1	0	6
Shut-In without Pipeline	1	0	0	1	2

The leases within the Sherard Unit Area were mostly developed within the Sherard Exploratory Unit. An exploratory unit is an agreement or plan for development and operation which provides for the recovery of oil and/or gas as a single consolidated entity, without regard to separate ownerships, and allows for the allocation of costs and benefits on a basis as defined in the agreement or plan.

There are three active wells in the Sherard Unit. See the inset box on the previous page showing current natural gas activity in the Monument.

Wells Outside Field Boundaries

There is one other well in the Monument that is not in a defined gas field or unit area. It is just east of the Leroy Gas Field and is shut in waiting on a pipeline. See the inset box on the previous page showing current natural gas activity in the Monument.

Existing Infrastructure – Oil and Gas

With the exception of county roads, an estimated 13 miles of access roads in the Monument service 12 federal, 1 state, and 1 private well. Many of the access roads are resource roads (two-track type roads) that allow well service vehicles and company personnel to visit the wells and facilities on a scheduled basis. The resource roads are not all-weather type surfaces and operators use judgment as to when the roads are passable.

Pipelines in the Monument service 10 federal and one state well. The estimated length of pipelines supporting the 11 wells is 31.1 miles. The existing pipelines do not always follow access roads. It is estimated that a quarter of the length of pipelines follows access roads. See Table 3.8 for the pipelines within the Monument study area that not only service the 10 federal wells in the Monument but also service another 19 wells outside the Monument, which are part of the overall natural gas system in the area.

The infrastructure related to natural gas surface operations, other than the access roads and pipelines, includes the following items:

- meter shed (8 ft long x 8 ft tall x 5 ft wide) (Figure 3.4);
- well head (can be enclosed within the meter shed depending on the operation) (Figure 3.5);
- gas meter run (enclosed within the meter shed) (Figure 3.6);
- glycol barrel (can be enclosed within the meter shed);
- small water separator (normally enclosed within the meter shed depending on the well and the operation);
- water pit sized depending on the operation, but can range from 20 ft x 20 ft x 8 ft to 40 ft x 40 ft x 10 ft); and
- gas compressor. (Compressors typically do not accompany each well. Depending on the operation and

the size of the compressor, one gas compressor could service 8-12 wells. Currently, no gas compressors are located within the Monument study area; however, a skid-mounted 42 HP compressor has been approved by the State of Montana on the David Kincaid No. 1 private well (the compressor has not been installed as of this document.)

Figure 3.4 – Meter Shed



Figure 3.5 – Well Head Only



Figure 3.6 – Meter Run within Meter Shed

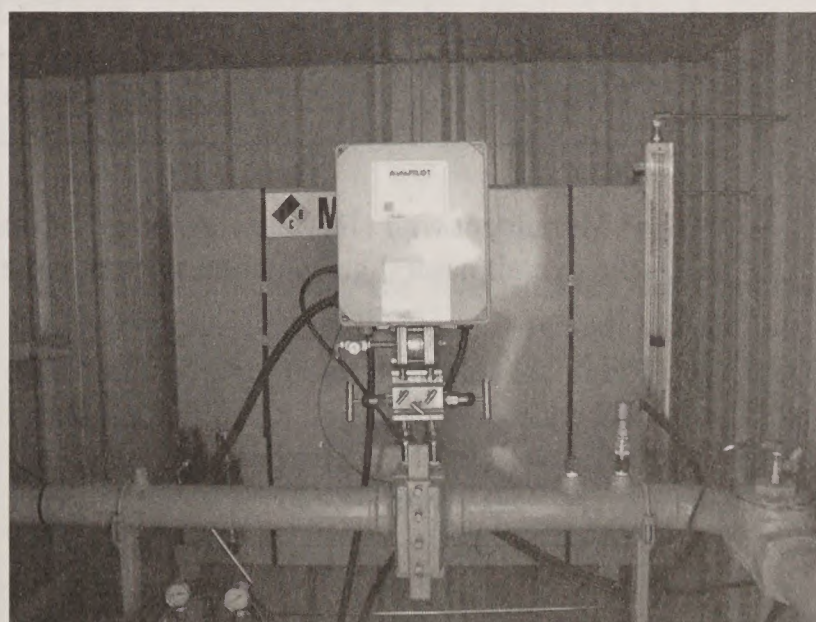


Table 3.8
Pipelines within the Monument Study Area

<i>Pipeline Section</i>	<i>Wells Serviced by Pipelines</i>	<i>Pipeline Length</i>
Butch Camp	Fed No 1-7*	4.8 miles (4.6 miles of ROW)
Johnson/Irvin Ridge	Fed 29-15*	8.5 miles (8.0 miles of ROW)
North Leroy	Fed 23-26-20, Fed 21X-26	0.4 miles (0.0 miles of ROW)
Robinson/N. Bullwhacker	Fed No 1-12*, Fed No 15-1, David Kincaid No 1, Fed No 31-3*, State No 1, Fed No 34-1	12.9 miles (9.1 miles of ROW)
Sawtooth	Fed 1-2, US 9-9, Fed 15-9	0.7 miles (0.0 miles of ROW)
Sherard "E" PA	US 4-27*, US 6-28*, US 28-1*	2.5 miles (1.6 miles of ROW)
Sherard/Northwest Leroy	Fed 11-25-19, US 29-10, 34-15, State 36-26-19	3.5 miles (2.1 miles of ROW)
Southeast Leroy	Fed No P21-23-19N, Fed No N27-23-19B, Fed No A28-23-19N, Fed No 31-23-19, Osburnsen 29-23-19, Fed L22-23-19N*	12.6 miles (8.7 miles of ROW)
W. Bullwhacker	Fed No 31-25-20*	5.1 miles (4.5 miles of ROW)
W. Coal Ridge	Fed No 35-24-18A*, Fed No 35-24	1.3 mile (0.3 miles of ROW)
Total	29 wells	52.2 miles (39.1miles of ROW)

* Monument well (10 wells). Another 19 wells are outside the Monument but are serviced by the overall natural gas pipeline system in the area.

Recreation

The recreation resources of the Monument are diverse in nature and provide an expanse of opportunities ranging from camping in developed campgrounds to camping in widely dispersed primitive campsites; from taking an upland vehicle tour on a Back Country Byway to taking a float trip down the Missouri River; and from hunting elk in the Breaks to hunting pheasants on river islands. Recreation resources are rich and diverse and provide opportunities for most every type of interest.

Benefits derived from these opportunities are also diverse. Local gateway communities gain economic benefit from a local, regional and national base of visitors. Likewise, visitors benefit from association with the friendly rural lifestyle and slower pace of central Montana's small communities. Another current benefit is the freedom to access public lands within the Monument and have the ability to choose from a variety of high quality opportunities and experiences. Educational benefits are also prevalent. The BLM Fort Benton Visitor Contact station strives to provide educational opportunities to those visiting the Monument. In addition, the BLM web site, a newly revised boater guide and numerous brochures provide the public an opportunity to learn more about the natural and cultural history of the Monument.

Much of the area is remote and spectacular landforms remain essentially unchanged. Settings vary from riparian corridors to the rolling pine and juniper-covered slopes of the Breaks to expanses of sagebrush flatlands. The contrast and diversity provide for a plentiful wildlife population, numerous recreational opportunities, livestock grazing and multiple use activities. Flowing through the heart of the Monument is the Missouri River. Many of the resources and geologic features described by Lewis and Clark during their epic 1805-06 journeys on the river remain virtually unchanged. A boater on the Missouri River may pass cattle grazing operations, or the remains of old homesteads, but visually they find little has changed in 200 years.

Recreation Management Areas

Four recreation management areas (RMAs) are currently within the Monument (the RMAs are being considered for change under the Visitor Use, Services and Infrastructure section of the Alternatives in Chapter 2). The RMAs do not follow a legal boundary. They are simply areas delineated for specific recreation management focus. The RMAs fall into two categories: Special and Extensive.

A Special Recreation Management Area (SRMA) is an area where a commitment of BLM staffing and funding has been made, within the parameters of multiple use, to provide

opportunities for specific recreation activities and experiences on a sustained yield basis. An Extensive RMA is an area where recreation management is only one of several management objectives and where limited commitment of BLM staffing and funding for recreation is required. Extensive RMAs tend toward dispersed recreation opportunities with less development.

South Phillips Special Recreation Management Area – About 48,000 acres of the South Phillips SRMA are located in Phillips County. This SRMA provides hunting, fishing, scenic and wildlife viewing and pleasure driving opportunities.

Judith Extensive Recreation Management Area – The Judith RMA includes about 105,000 acres of BLM land in Fergus and Chouteau Counties. This is an extensive RMA which provides dispersed and unstructured recreational activities.

Within this RMA is the Judith River, which provides float boating, hunting, fishing, scenic and wildlife viewing and camping opportunities. The Judith River was evaluated for Wild and Scenic River status and a 27.1 mile segment was studied and found eligible but not suitable for Wild and Scenic River status (BLM 1994b).

North Missouri Breaks Special Recreation Management Area – The North Missouri Breaks SRMA includes about 133,000 acres of BLM land in Chouteau and Blaine Counties.

Upper Missouri River Special Recreation Management Area – The Upper Missouri River SRMA includes about 89,000 acres of BLM land. This SRMA includes the Upper Missouri National Wild and Scenic River.

Upper Missouri River

The dominant recreation resource within the Monument is the 149-mile Upper Missouri National Wild and Scenic River. Each year approximately 6,000 boaters take trips of various lengths ranging from 1 to 10 days and participate in a range of activities using a variety of non-motorized and motorized craft.

Access Points

Major access points to the river include the Chouteau County Fairgrounds Campground and Canoe Launch above Fort Benton, Fort Benton powerboat ramp, Coal Banks Landing, Judith Landing and James Kipp Recreation Area. Lesser-used points include Wood Bottom (Loma), Virgelle Ferry and McClelland-Stafford Ferry. Private land access points also exist.

Developed Sites

Developed sites on the UMNWSR include Level 1, 2 and 3 sites. Dispersed camping opportunities are considered Level 4. For a description of Levels 1-4, see the River Recreation Facilities inset.

The following public sites and facilities support recreation activities taking place in the UMNWSR. The sites are listed geographically in downstream order, beginning at Fort Benton and ending at the James Kipp Recreation Area. The only developed site where fees are currently charged is the James Kipp Recreation Area where a \$6.00 per vehicle fee is charged for overnight camping. Other Level 1 sites could qualify as expanded amenity fee sites based on guidelines established by the FLREA.

Fort Benton Visitor Contact Station is staffed by volunteers and operated seven days a week from May 1 through September 15. Visitors can obtain information related to recreation opportunities within the Monument. The contact station will be closed in 2006 and will be replaced by the new Upper Missouri River Breaks National Monument Interpretive Center. The new interpretive center will provide opportunities to expand visitors' knowledge about the wide array of special places and resources found within the Monument. The new interpretive center will qualify as a standard amenity fee site.

Evans Bend (river mile 5.7) is a primitive boat camp with a metal fire ring.

Senieurs Reach (river mile 16.2) is a primitive boat camp with a metal fire ring.

Black Bluff Rapids (river mile 19.2) is a primitive boat camp with a metal fire ring.

Wood Bottom (river mile 20.3) is a developed public access site with a gravel parking area, vault toilet, and informal boat ramp.

Decision Point Interpretive Trail is a developed public access site with a gravel parking area, interpretive kiosk, and interpretive signs on a short hiking trail.

Coal Banks Landing (river mile 41.5) is a developed public access site and campground with tent and RV camping, 13 picnic tables, 9 fire rings, 2 vault toilets, 2 parking areas, a concrete boat ramp, and a volunteer host contact station. Coal Banks Landing is the primary launch point for visitors who boat on the Missouri River. Reconstruction of the site is planned but not currently scheduled. Reconstruction will include a new potable water system, irrigated lawns, shade shelters, a new log building check-in center, and additional native landscaping and windbreaks.

River Recreation Facilities

Level 1 – Developed public access sites. These sites are accessible by road with a full range of developments that could include parking lots, boat ramps, vault toilets, campsites for tents and RVs and picnic facilities. These sites include the Chouteau County Fairgrounds Campground and Canoe Launch, Decision Point Interpretive Trail, Wood Bottom, Coal Banks Landing, Judith Landing, Lower Woodhawk and the James Kipp Recreation Area.

Level 2 – Developed boat camps. These sites are accessible to the public only by boat. The sites could include vault toilets, metal fire rings and occasionally open-air shelters. They include Little Sandy, Eagle Creek, Hole-in-the-Wall and Slaughter River. BLM has administrative road access to these sites.

Level 3 – Primitive boat camps. These sites are accessible only by boat and could contain a metal fire ring. There are no other developments. These sites include Evans Bend, Senieurs Reach, Black Bluff Rapids, Dark Butte, Pablo Rapids, The Wall, McGarry Bar, Gist Bottom, Cow Island, Upper and Middle Woodhawk and Hideaway.

Level 4 – Dispersed camping opportunities. In addition to the developed sites described above, camping is permissible on any of the 90,000 acres of BLM land adjacent to the river. The absence of development allows opportunities for those seeking a completely primitive experience.

Little Sandy (river mile 46.7) is a developed boat camp with a vault toilet and 2 metal fire rings. An administrative road provides access to the site for the purpose of facility maintenance.

Eagle Creek (river mile 55.7) is a developed boat camp with 2 vault toilets and 5 metal fire rings. Eagle Creek, located on private land, is part of a recreation easement purchased by the BLM. An administrative road provides access for the purpose of facility maintenance.

Hole-in-the-Wall (river mile 62.9) is a developed boat camp within a fenced enclosure with 2 vault toilets, 5 metal fire rings, and 2 shade shelters constructed of wood. The site has a non-potable well with a hand pump used to irrigate cottonwood and green ash plantings.

Dark Butte (river mile 68.8) is a primitive boat camp with 2 metal fire rings and 2 composting toilets.

Pablo Rapids (river mile 72.8) is a primitive boat camp within an electric fence enclosure. The site has one metal fire ring and a solar panel that supplies power to the fence and power to irrigate cottonwood and green ash plantings.

Slaughter River (river mile 76.8) is a developed boat camp within a fenced enclosure. The site has 2 vault toilets, one shade shelter constructed of wood and 5 fire rings.

The Wall (river mile 81.2) is a primitive boat camp within an electric fence enclosure. The site has one metal fire ring and a solar panel that provides power to the fence and power to irrigate cottonwood and green ash plantings.

Judith Landing (river mile 88.5) is a developed public access site and campground with a concrete boat ramp, 2 vault toilets, a volunteer host contact station, 11 picnic tables and 9 fire rings.

McGarry Bar (river mile 103.1) is a primitive boat camp with one metal fire ring.

Gist Bottom (river mile 122.4) is a primitive boat camp with one metal fire ring.

Cow Island (river mile 125.6) is a primitive boat camp with 2 wooden outhouses.

Upper Woodhawk (river mile 129.5) is a primitive boat camp with one metal fire ring.

Middle Woodhawk (river mile 130) is a primitive boat camp with one metal fire ring.

Lower Woodhawk (river mile 131) is a developed public access site and campground with 2 picnic tables, 2 fire rings, and one vault toilet.

Hideaway (river mile 136.2) is a primitive boat camp with 2 metal fire rings.

James Kipp Recreation Area (river mile 149) is a developed public access site and campground. Kipp is an expanded amenity fee area with 34 tent and RV camping sites with picnic tables and fire rings, gravel access roads, 8 vault toilets, a concrete boat ramp, RV dump station, volunteer host contact station, interpretive kiosk, and a metal maintenance building.

Sunshine Ridge Overlook is an undeveloped scenic viewing site.

Undeveloped Sites

Undeveloped sites are Level 4 opportunities which exist on BLM land along the Missouri River. Many of these are very popular sites where a rock fire ring and trampling of vegetation denote recreational use. Approximately 119 sites either have rock fire rings or have been identified as potentially suitable for camping. Undeveloped sites provide opportunities for those seeking a primitive camping experience. These sites are generally well dispersed, less

crowded and offer small groups a quiet alternative away from developed sites where concentrated use may occur.

Visitor Activities

Boating with associated camping and exploring is the predominant use of the UMNWSR and occurs primarily between June and August (Burchfield and Moisey 2000). A typical trip on the Missouri River consists of a group of 6 people in canoes or kayaks paddling and camping three nights and four days from Coal Banks Landing to Judith Landing (river mile 41.3 to 88.5). The majority of overnight camping is accounted for in the White Cliffs section at the Eagle Creek, Slaughter River, Coal Banks Landing, and Hole-in-the-Wall campsites. Other campsites located within this area and having similar levels of development, such as Little Sandy or Dark Butte, are only lightly used. Sites from Judith Landing downriver are also noticeably less used (Burchfield and Moisey 2000).

The shoulder seasons in May and September receive fewer visitors. In April and May, anglers are active, and from September through November hunters become the primary user group and access the corridor from the rim by vehicle and the bottomlands by boat (Burchfield and Moisey 2000).

Hunting is widely dispersed over the UMNWSR, but a significant portion occurs between Judith Landing and the James Kipp Recreation Area, and between Fort Benton and Coal Banks Landing during the big game and upland game hunting season.

Hiking, hunting and sightseeing are popular activities along several segments of the UMNWSR, and they are particularly popular among floaters who can supplement their time on the water with exploratory day hikes near campgrounds or picnic sites. Some areas are attractive for non-technical climbs, such as the Hole-in-the-Wall formation, which has an informal trail leading from the minimally developed Hole-in-the-Wall campground. Data for off-site uses has not been collected in the past (Burchfield and Moisey 2000). No designated/managed trails are located along the UMNWSR, but hiking and exploring among the geologic formations is a popular activity.

Characteristics of Visitor Use

Visitor use data is collected throughout the year by means of boater registration. From May 1 through September 30 volunteer hosts and a seasonal workforce support the collection effort by registering boaters at their put-in point. During the shoulder season, data collection efforts rely on boaters self-registering prior to launch.

Information collected on boater registration forms is analyzed and compiled to provide statistics about certain visitor use patterns and characteristics. Statistics and infor-

mation are compiled in the following categories: number of boaters, number of groups and related group size statistics, number of residents and non-residents, busiest and slowest launch days, seasonal visitor use distribution, percent of motorized and non-motorized craft, percent of use occurring in each of the three river segments, and percent of use by group type.

The majority of use on the Missouri River occurs in the summer months between June and August. The busiest portion of the season is from June 15 to August 1. However, recreation along the UMNWSR in the spring and fall, particularly during hunting season, is also important to visitors. Data on visitor use are only collected in the summer months, so it is difficult to estimate year-round use levels (Burchfield and Moisey 2000).

Number of Boaters

Historically, use increased from 2,060 registered boaters in 1975 to 3,256 in 1997. In 1998, the BLM stationed full-time hosts at each major access point on the river to assist boaters with trip registration. During that same year *Undaunted Courage* by Stephen Ambrose was published and recorded use levels increased to 4,339 visitors. Use took another large jump in 1999 to 5,442, but since then has been relatively flat, ranging between 5,442 and 6,034 visitors. Use from 1975 through 2004 is reflected in Figure 3.7.

Number of Groups and Related Group Size Statistics

Group size ranges from 1 to 50 people. Six people per group is the average size. In 2004, a total of 1,069 groups registered to launch on the river. Of the 1,069 groups, 96.5% (1,036 groups) were groups of 20 people or less and accounted for 5,001 of the total registered boaters. The other 3.5% of the groups (33 groups) were groups larger than 20 people and accounted for 16.5% of the total visitor use, or 992 registered boaters. Analysis of 2002 and 2003 group size data provides numbers consistent with 2004 figures. Refer to Table 3.9 for general group size data.

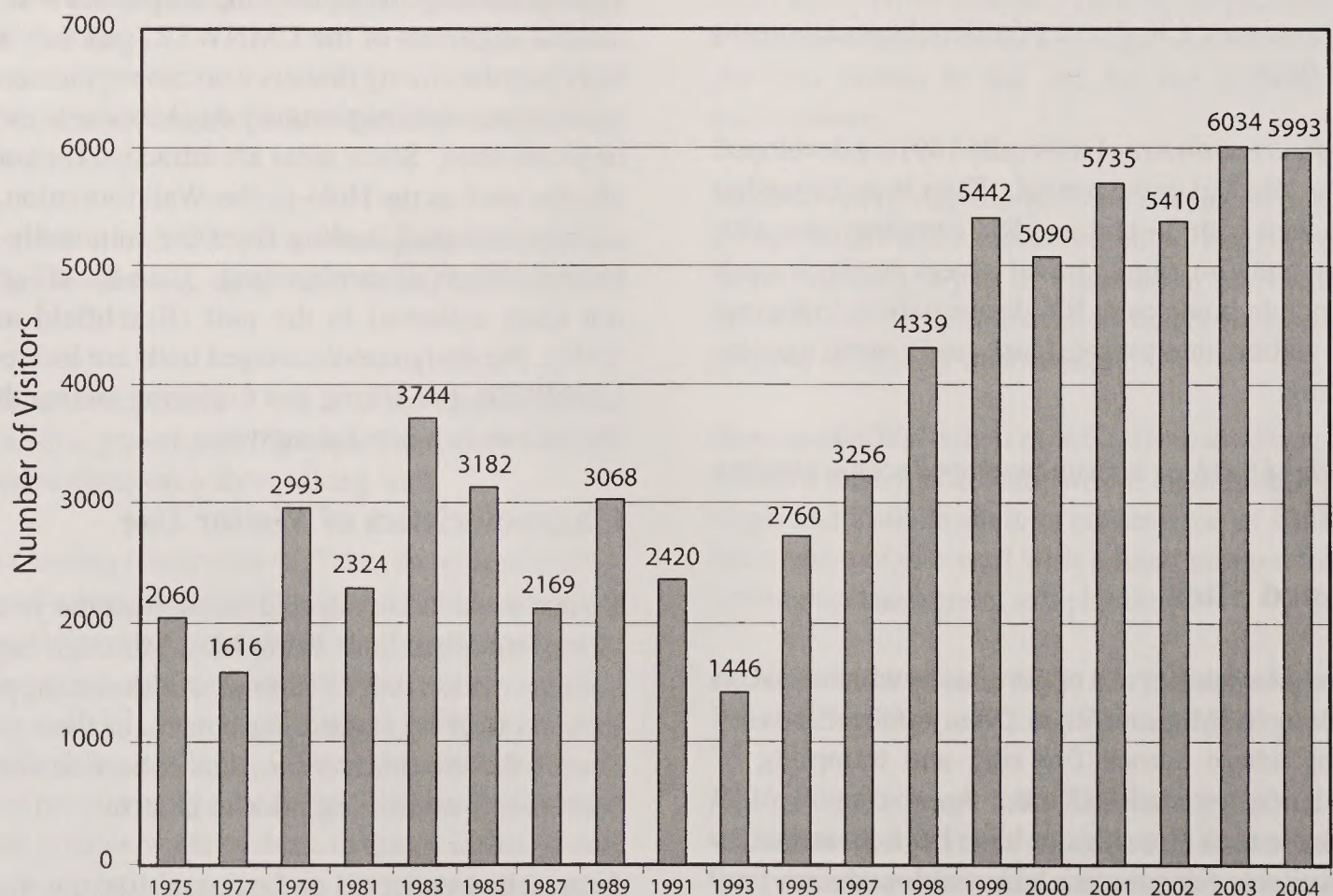
Residency

In 2002, resident and non-residents boaters were evenly divided. In 2003 and 2004, non-residents boaters were the slight majority. See Table 3.9 for 2002-2004 residency data.

Busiest Launch Days

The busiest launch days are generally Sunday and Monday. Boaters typically use the weekend to travel from their home base, and then launch on Sunday or Monday. On an average trip, boaters would complete their trip during the week and then use the following weekend to return home. See Table 3.9 for 2002-2004 busiest launch days.

Figure 3.7
Historic Visitor Use on Upper Missouri River
1975-2004



Source: BLM Boater Registration Data

Table 3.9
Upper Missouri River Visitor Use Statistics
2002-2004

<i>Year</i>	<i>Total Use</i>	<i>Total # of Groups</i>	<i>Avg. Group Size</i>	<i>Montana Residents (Percent)</i>	<i>Busiest Launch Days</i>	<i>Slowest Launch Days</i>	<i>Busiest Month</i>
2002	5,410	889	6.1	51	Sun/Mon	Wed/Thurs	July (32%)
2003	6,034	992	6.1	45	Sun/Tues	Wed/Thurs	July (31%)
2004	5,993	1,069	5.6	46	Sun/Mon	Fri/Sat	July (29%)

Source: BLM Boater Registration Data

Seasonal Visitor Use Distribution

The period from June 15 to August 1 is the busiest portion of the boater season. Figure 3.8 shows 2004 visitor use in weekly increments. The busiest week of the season is generally the third or fourth week of June. In 2004, 51% of total annual visitor use occurred between June 15 and August 1. In 2002 and 2003, 52% of the total annual use occurred during this timeframe.

River Segment Visitor Use Distribution

The river can be viewed as three distinct segments. The upper segment extends from Fort Benton to Coal Banks Landing, or river miles 0 to 41.5. The White Cliffs segment extends from Coal Banks Landing to Judith Landing, or river miles 41.5 to 88.5. And the lower segment extends from Judith Landing to the James Kipp Recreation Area, or

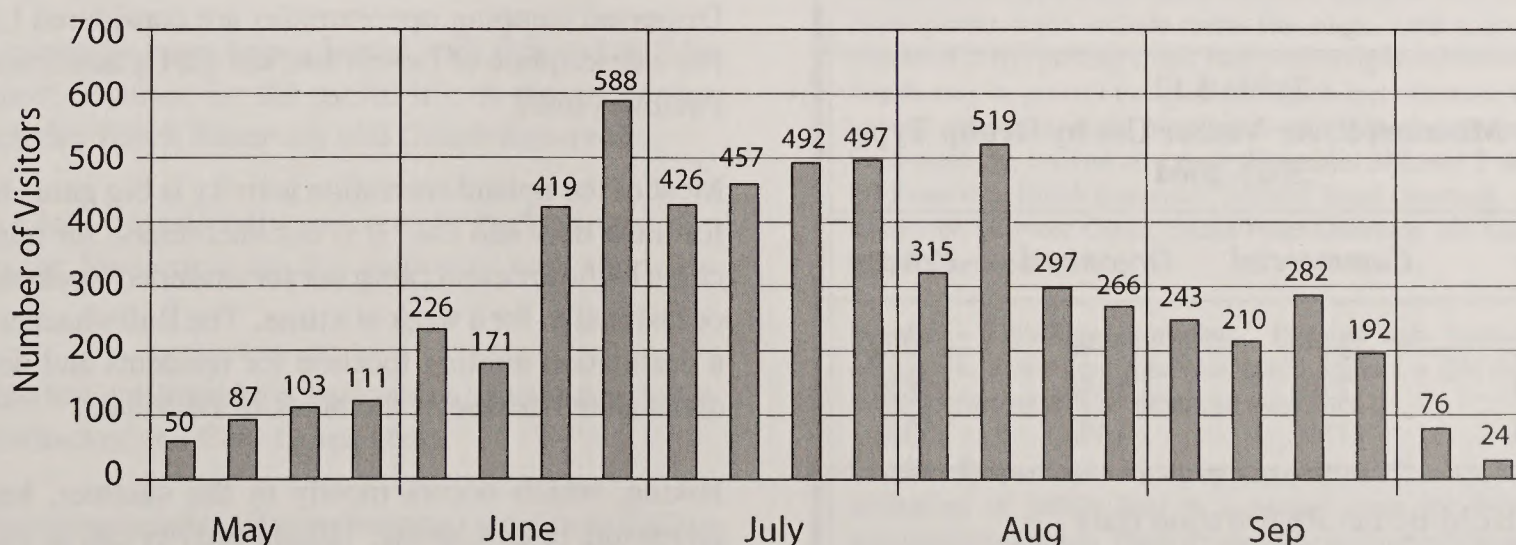
river miles 88.5 to 149. In 2004, 84% of all registered boaters traveled through the White Cliffs segment of the river. Sixteen percent traveled through the upper segment, and 28% through the lower segment. See Table 3.10 for 2002-2004 percentages.

Table 3.10
Upper Missouri River Visitor Use by Segment
2002-2004

<i>Year</i>	<i>Upper</i>	<i>White Cliffs</i>	<i>Lower</i>
2002	16%	84%	28%
2003	22%	78%	22%
2004	21%	78%	22%

Source: BLM Boater Registration Data

Figure 3.8
Upper Missouri River Visitor Use Distribution by Week
May-September 2004



Source: BLM Boater Registration Data

Watercraft Use

A canoe is the preferred means of transportation on the river. Boaters also use kayaks, rafts, drift boats and a variety of motorized watercraft. Any boat (canoe, raft, jon boat, etc.) launched with a motor is considered a motorized watercraft. In 2004, 10% of all boats launched were motorized crafts. In 2002 and 2003, motorized craft accounted for 8% and 7% of all craft, respectively. See Table 3.11 for a summary of motorized and non-motorized watercraft use.

Table 3.11 Upper Missouri River Watercraft Use 2002-2004			
Year	Total Craft	Motorized	Non- Motorized
2002	2,613	198 (8%)	2,415 (92%)
2003	2,778	202 (7%)	2,576 (93%)
2004	2,772	288 (10%)	2,484 (90%)

Source: BLM Boater Registration Data

Group Types

In 2002, 2003 and 2004, visitor registration forms requested boaters identify a user category. Users were separated as guided, organized and private groups. Guided groups were those traveling with a BLM-authorized commercial outfitter. Organized groups were church groups, Boy Scouts, college and university groups, or any other type of formally organized group of users. Private boaters were individuals or groups of individuals that had no formal organized structure and typically were composed of friends and family floating the river. See Table 3.12 for a breakdown of 2002-2004 visitors by group type.

Table 3.12 Upper Missouri River Visitor Use by Group Type 2002-2004			
Year	Commercial	Organized	Private
2002	24%	17%	59%
2003	27%	15%	58%
2004	31%	16%	53%

Source: BLM Boater Registration Data

Commercial River Use

Commercial outfitters have provided visitor services since prior to the Upper Missouri National Wild and Scenic River designation in 1978. Commercial permits are limited by a moratorium to 23 for the Missouri River between Fort Benton and the James Kipp Recreation Area and must be authorized/permitted by the BLM. The moratorium capped Special Recreation Permits (SRPs) at the number issued in 1999. Commercial permittees included as part of the moratorium permits are allowed unlimited trips. In 2004, eight "one-time" commercial permits were also issued. One-time permits authorize groups meeting the definition of commercial to take one trip per season on the Missouri River. Commercial trips are an integral part of the visitor use pattern and in 2004 comprised 31% of total river use. Figure 3.9 compares commercial visitor use to overall visitor use from 1997 through 2004.

Vendor permits are issued for support services on the river. In 2004, two vending permits were issued to shuttle companies who support river trip activities by shuttling vehicles from put-in points to take-out points. Many of the 23 commercial users also perform shuttle services within the context of their commercial river guiding operations.

In addition to commercial services tied directly to boating activities, the BLM also authorizes permits for commercial tours in the uplands adjacent to the UMNWSR. In 2004, the BLM issued a permit for guided horse rides, a permit for guided hikes and a permit for vehicle tours.

Special Recreation Permits are also required for all non-commercial special activities occurring in the UMNWSR. Presently, the only non-commercial permit issued to an organized group is for a Lewis and Clark encampment at the James Kipp Recreation Area each year.

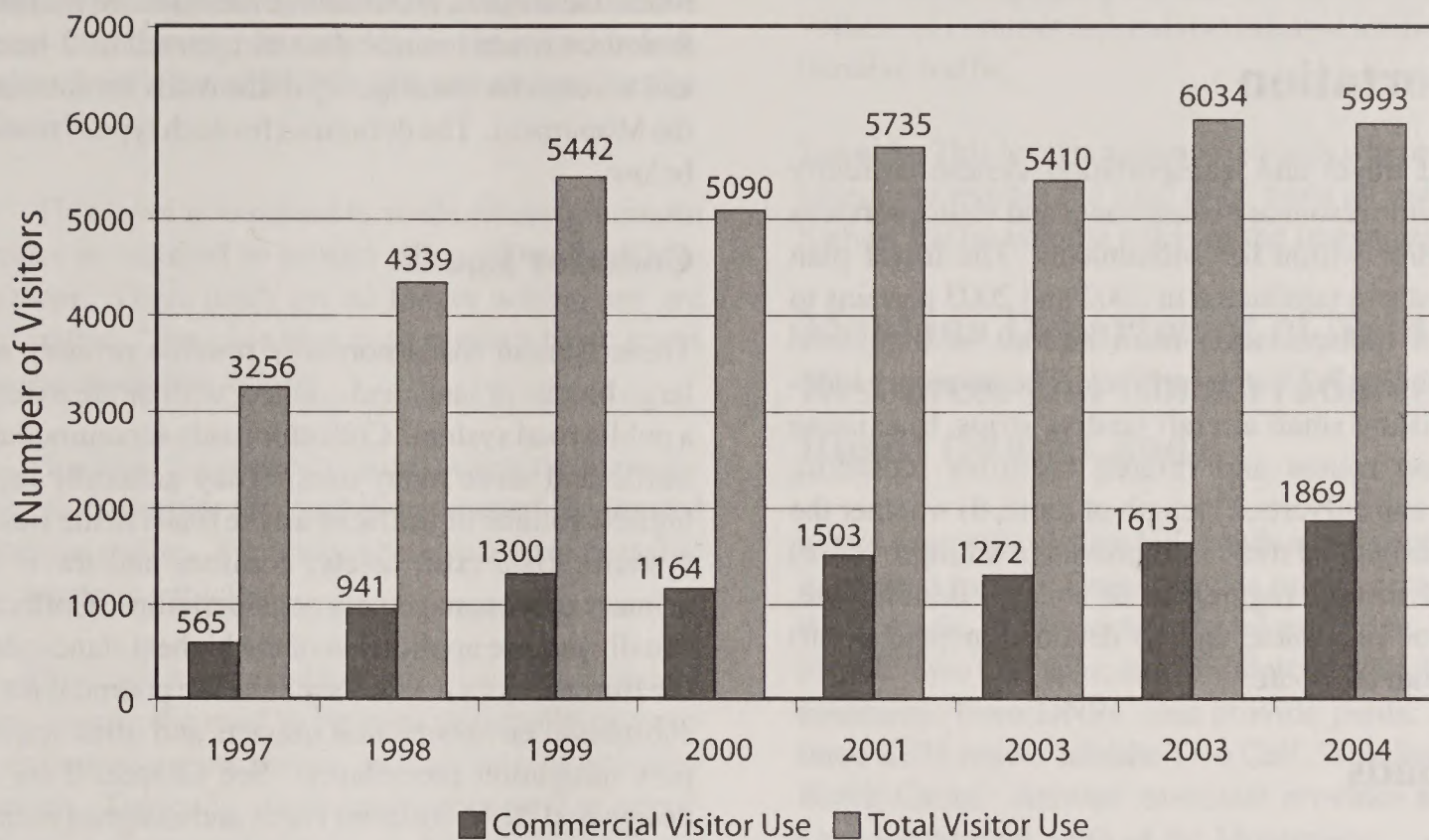
Uplands

Developed sites in the uplands include Level 1, 2 and 3 sites. Dispersed camping opportunities are considered Level 4. For a description of Levels 1-4, see the Upland Recreation Facilities inset.

Most of the upland recreation activity is big game hunting for mule deer and elk. It is not uncommon for hunters to come to the area and camp out for extended weekends and, occasionally, for a week at a time. The Bullwhacker area is a destination hunting location for residents and non-residents alike because of the block of BLM land.

Hiking, which occurs mostly in the summer, has been increasing in all seasons. Hiking activity can be extended day trips, but until recently, most amounted to day hikes from existing roads or trails where camping occurs on

Figure 3.9
Comparison of Commercial and Total Upper Missouri River Visitor Use
1997-2004



The 2004 commercial total includes one-time commercial use numbers. Previous years do not. One-time use accounted for 125 visitors in 2004, or an additional 2% of overall use.

Source: BLM Boater Registration Data

undeveloped sites. No organized hiking trail network exists, which is one of the attractions of the area – providing a “search and discover” experience. Other attractions are historic sites, scenery, wildlife viewing, and solitude.

Motor touring/sightseeing is becoming more common in the summer season, especially on the Missouri Breaks Back Country Byway. Other attractions include the Spencer Road Overlook on the Nez Perce National Historic Trail, Snake Point Overlook on the Lewis and Clark National Historic Trail, and the Gilmore Cabin.

A few reservoirs have been planted with fish and will be small sport fisheries for the useful life of the reservoirs. This includes Butch Reservoir and Gazob Reservoir.

Private pilots occasionally use remote backcountry airstrips in the Monument for day stopovers with short day hikes.

Christmas tree cutting is an occasional recreation activity in the Bullwhacker and Cow Creek areas.

Fourteen commercial outfitters (hunting) receive an SRP to operate on an annual basis. No limits are placed on the number of SRPs issued or the number of trips per operator.

Upland Recreation Facilities

Level 1 – Developed public access sites. Recreation sites where a high level of infrastructure development could include campsites, parking lots, vault toilets, interpretive signs, campground host facilities, tree plantings, picnic tables, waste facilities and other infrastructure improvements that accommodate the transition from highway to collector roads. Sites would be marked on a map. An example of a Level 1 site is James Kipp Recreation Area on the river.

Level 2 – Developed upland sites. Campsites, trailheads, scenic overlooks and reservoirs where moderate levels of infrastructure development could include metal fire rings, vault toilets, and improved gravel parking areas. Interpretive signs and information boards may be present but would be much less obtrusive than at Level 1 sites and would blend well with natural surroundings. Sites would be marked on a map. Examples of Level 2 sites are FR Reservoir, Butch Reservoir, Spencer Road Overlook, Gazob Reservoir, Gilmore Cabin, Snake Point Overlook and Sunshine Ridge Overlook.

Level 3 – Primitive campsites. Pull-out sites immediately adjacent to a resource road that could contain a fire ring and minimal signing, but no other infrastructure.

Level 4 – Dispersed camping opportunities. This would be the utilization of public land in a natural state for dispersed, undeveloped camping. These areas may be accessible by motorized or non-motorized travel. There would be no infrastructure in these areas.

Historically, between one and five non-commercial permits are issued annually for organized group recreation activities (e.g., Nez Perce trail ride). No limits are placed on the number of non-commercial permits issued.

Transportation

A motorized travel and transportation system currently exists to provide resource management and visitor services needs to and/or within the Monument. The travel plan inventory that was conducted in 2002 and 2003 pertains to all modes of transportation from aircraft to motorized vehicles including ATVs/motorbikes. The inventory identified: a) existing small aircraft landing strips, b) existing transportation routes and related facilities including cattleguards and culverts, c) length of route, d) whether the existing or designated route is improved or unimproved, e) type of road surface (aggregate or soil), f) double lane, single lane or two-track, and g) destination (end point) associated with the route.

BLM Roads

A road is a linear route segment that can be created by the passage of vehicles (two-track); constructed; improved; or maintained for motorized travel. The following specifications were used to determine which routes would be inventoried for the Monument transportation plan database:

Motorized travel is not considered cross-country (off-road) on BLM land when:

- The motorized vehicle uses constructed roads that are maintained by the BLM. Constructed roads are often characterized with cut and fill slopes.
- The motorized vehicle use is clearly evident two-track routes with regular travel and continuous passage of motorized vehicles over a period of years. A two-track is where perennial vegetation is devoid or scarce, or where wheel tracks are continuous depressions in the soil yet evident to the casual observer and are vegetated.

Roads Inventory

A two-person seasonal inventory crew collected data on 436 miles of BLM roads (a total of 759 miles for all roads) during the summer of 2002 for the east half of the Monument, and another seasonal crew collected additional information on 44 miles of BLM roads (a total of 81 miles for all roads) in the west half. Information on another 114 miles of BLM roads was obtained from existing data. A GPS Trimble unit with satellite connections was used to document the road data. A map showing the existing road system is available on the BLM website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm.

BLM Road Classifications

BLM roads are classified into three categories: collector roads, local roads, and resource roads (BLM Manual 9113). Resource roads include the unimproved or 2-track routes and account for the majority of the roads inventoried within the Monument. The definition for each type of road is stated below.

Collector Roads

These Bureau roads normally provide primary access to large blocks of land, and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic of all the roads in the Bureau road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the Bureau. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures. See Chapter 2 for a list of designated BLM collector roads and assigned maintenance levels.

Local Roads

These Bureau roads normally serve a smaller area than collectors, and connect to collectors or a public road system. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by effect of terrain, may be single-lane roads with turnouts. Environmental impacts are reduced as steeper grades, sharper curves, and lower design speeds than would be permissible on collector roads are allowable. See Chapter 2 for a list of designated BLM local roads and assigned maintenance levels.

Resource Roads

These Bureau roads normally are spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing Bureau costs, with minimal consideration for user cost, comfort, or travel time. See Chapter 2 for a list of designated BLM resource roads and assigned maintenance levels.

BLM Road Maintenance Levels

Every BLM road in the Facilities Inventory and Maintenance Management System (FIMMS) is assigned a maintenance level from Level 1 to Level 5, as described below. See Chapter 2 for a list of BLM roads and assigned maintenance levels.

Level 1 – This level is assigned to roads where minimum maintenance is required to protect adjacent lands and resource values. These roads are no longer needed and are closed to traffic. The objective is to remove these roads from the transportation system.

Level 2 – This level is assigned to roads where the management objectives require the road to be opened for limited administrative traffic. Typically, these roads are passable by high-clearance vehicles.

Level 3 – This level is assigned to roads where management objectives require the road to be open seasonally or year-round for commercial, recreation, or high volume administrative access. Typically, these roads are natural or aggregate surfaced, but may include low use bituminous surfaced roads. These roads have defined cross sections with drainage structures (e.g., rolling dips, culverts, or ditches). These roads may be negotiated by passenger cars traveling at prudent speeds. User comfort and convenience are not considered a high priority.

Level 4 – This level is assigned to roads where management objectives require the road to be open all year (except may be closed or have limited access due to snow conditions)

and to connect major administrative features (recreation sites, local road systems, administrative sites, etc.) to county, state, or federal roads. Typically, these roads are single or double lane, aggregate or bituminous surface, with a higher volume of commercial and recreational traffic than administrative traffic.

Level 5 – This level is assigned to roads where management objectives require the road to be open all year and are the highest traffic volume roads of the transportation system.

Montana Department of Natural Resources and Conservation (DNRC) Roads (State Land)

Seven segments of state land roads are designated open for motorized travel. These provide public access along five BLM roads: Bullwhacker, Antelope Ridge, Duvall Trail, Middle Two Calf spur, and Middleton. Also, BLM has five easements from DNRC that provide public access along three BLM roads: Middle Two Calf, Woodhawk Trail and Butch Camp. Another easement provides access for the Cow Island road north of the Monument.

County Roads

The county commissioners for Blaine, Chouteau, Fergus, and Phillips Counties have identified county roads that provide public access routes to or within the Monument (Table 3.13) along with documentation to verify the designations.

Table 3.13 Public Access Routes to or within the Monument			
Blaine County	Chouteau County	Fergus County	Phillips County
Birdtail Road Cow Island Road Lloyd Road Power Plant Ferry Road	Butte View Road Clear Lake Road Eagleton Road Eight Mile Bench Road Flat Creek Road Gardiner Road Graceville Road Hopp Road Judith Landing Road Loma Bridge Road Panton Road Rowe Bench Road Sheep Coulee Road Twin Lakes Road Virgelle Ferry Road White Rocks Road	DY Trail Knox Ridge Road McClelland-Stafford Ferry Road PN Road Whiskey Ridge Road	Bull Creek Road Power Plant Ferry Road

U.S. Fish and Wildlife Service Roads

The routes for the Charles M. Russell National Wildlife Refuge include the Knox Ridge Road (segment #209) westward from the James Kipp Recreation Area (U.S. Highway 191) to the Monument; the Lower Two Calf Road (segment #307), which provides access to the Missouri Breaks Back Country Byway route along the UMNWSR; and the Mitchell Crossing Road (segment #850) which provides access to Armells Creek and Fargo Coulee in the southeast portion of the Monument.

Fort Belknap Indian Reservation

The route on the Fort Belknap Reservation includes the Hays East Road to U.S. Highway 191 near Hays/Lodgepole.

State Highways

These routes include U.S. 87 on the west end, Montana Secondary 236 in the middle, and U.S. 191 on the east end of the Monument area.

Easements Providing Access to and Within the Monument

The BLM holds easements for public access across state and private land as shown in Table 3.14.

Aviation

Ten backcountry airstrips are located on BLM land within the east half of the Monument. A map showing the location of the airstrips is available on the BLM website at http://www.blm.gov/nhp/spotlight/state_info/planning.htm. Eight small aircraft landing strips have been identified on the north side of the Missouri River in Blaine County:

- Black Butte North
- Black Butte South
- Bullwhacker
- Cow Creek
- Ervin Ridge
- Left Coulee
- Log Cabin
- Roadside

The other two are located on the south side of the Missouri River in Fergus County:

- Knox Ridge
- Woodhawk

Fire

Wildland Fire Ecology

The landform is a series of drainages and ridges running mostly north to south. The area is made up of rolling upland plateaus known locally as benches, with moderate to deeply incised canyons. Native vegetation is primarily sagebrush and grasslands on the plateaus, changing to ponderosa pine, Douglas-fir and juniper forests on the canyon slopes. Riparian shrubs and cottonwood trees are found along the Missouri River and in the drainage bottoms throughout the area. Some of the private uplands are in annual cereal crop production, some are in the Conservation Reserve Program maintaining an undisturbed cover of perennial grass, and the remainder is native rangelands.

The entire Breaks area is a fire-adapted ecosystem. For a period of time every year, usually from late May to late July, wet thunderstorms are a regular occurrence and lightning sparks numerous fires. In most cases, these fires remain small due to the moisture present in the thunderstorms and the green vegetation during the late spring and early summer months. The fires that do grow to a larger size (usually less than 500 acres) start in the timbered areas of the Breaks. The larger size fires result from a combination of fuel buildup, drought conditions, and high winds after ignition.

Lightning fires alone do not account for the widespread occurrence of fire and the fire-adapted nature of the vegetation in the Monument area. A growing body of research suggests that for over 10,000 years the vegetation in the northern Great Plains and the Monument area was maintained and manipulated by American Indians' deliberate use of fire (the historical equivalent of prescribed fire). Of the American Indian tribes that frequented the Monument area, Williams (2002) documents deliberate fire use among the Shoshone, Blackfeet, Assiniboine, and Gros Ventre. Early settlers observed Indians setting fires in the Shonkin Creek area (Geraldine Historical Society 1976). The season for these pre-settlement prescribed fires was usually during periods of vegetative dormancy between mid-September and mid-May, and outside the lightning fire season, after late July (Kay 1994). Some post-settlement burning occurred in the late 1800s or early 1900s for land clearing or to improve range forage. Since the early 1900s the deliberate use of fire to maintain desired vegetation and wildlife habitat has been almost non-existent in the Monument area.

Wildland Fire History

Fire history for this area is based on vegetation types in the non-forested areas and fire scar data and tree age classes in the timbered areas. Based on analysis of the Fergus Tri-

Table 3.14
BLM-Held Easements

<i>Serial #</i>	<i>Road Name</i>	<i>Legal Description</i>	<i>Grantor</i>
M20515	Middle Two Calf	T22N R21E sec. 13: NENE	Montana
M20516	Middle Two Calf	T22N R21E, sec. 12: S2SE	Montana
M20517	Middle Two Calf	T22N R22E, sec. 16: S2SW	Montana
M78843	Cow Island	T26N R19E, sec. 36: N2, SE	Montana
M79484	Butch Camp	T26N R20E, sec. 36: SWSW	Montana
M79681	Woodhawk Trail	T23N R21E, sec. 16: E2	Montana
M07905	Knox Ridge	T21N R21E, sec. 7: Lot 2, SENW	Browning
M07906	Knox Ridge	T21N R21E, sec. 7: Lot 3, SW	Lusted
M07929	Knox Ridge	T21N R22E, sec. 9: S2SW	Bachhuber
M07931	Knox Ridge	T21N R22E, sec. 9: S2SE sec. 10: SWSW	Spears, et al.
M07933	Knox Ridge	T21N R21E, sec. 7: N2NE, NENW sec. 8: NWNE, N2NW sec. 10: NWNW, S2NW, NESW sec. 13: Lot 2, S2NE sec. 14: N2N2 T21N R22E, sec. 8: SESE sec. 10: SESW, S2SE sec. 11: S2SW, N2SE, SWSE sec. 17: NENW, S2NW, NWSW sec. 18: S2N2, NESE	Ward
M07934	Knox Ridge	T21N R21E, sec. 10: NWSE, E2SE sec. 15: NENE	Smith, et al.
M10444	Woodhawk Trail	T23N R21E, sec. 28: SWSW sec. 29: SESE sec. 32: NENE	Arthur
M77581	Cow Creek Crossing	T25N R21E, sec. 5: Lot 1, 2, SWNE T26N R21E, sec. 28: SESW sec. 33: W2NW, NWSW	Liddle
M77582	Coal Mine Coulee	T26N R19E, sec. 34: S2SE sec. 35: S2, SENE T26N R20E, sec. 34: E2SW, S2SE	Robinson, et al.
M78473	Woodhawk	T23N R21E, sec. 28: N2SW, SENW	Peterson

angle and Armells Creek areas (Balison 2002), the beginning of noticeable settlement and active fire suppression was 1911. During the pre-settlement period from 1841-1911, the average fire frequency interval was 7.7 years. The range of actual fire occurrence for this period runs from 2 to 29 years. Most of the fires recorded were low intensity surface fires that killed few trees as multiple fire scars were

common and the majority of trees were established in the 1860s.

Current fire history is based on fire reports from 1980 to 2003. During this period, the BLM and cooperating agencies have responded to 134 lightning fires and 10 human-caused fires that burned a total of 6,551 acres. The majority of the reported fires occurred in the timber/grass fuel type.

Fire Hazard

Fire could be beneficial in much of this area by regenerating decadent shrubs, reducing the encroachment of juniper into grasslands and forest understory, and reducing the density of ponderosa pine and Douglas-fir in timbered areas. Restoration of the pre-settlement fire regime would improve ecosystem health and resilience; however, unplanned fire under uncontrolled conditions in certain areas could threaten structures on private and BLM land and could result in negative impacts to wildlife habitat and vegetation. Areas of heavy fuel loading such as timbered coulees and brushy draws that have been without fire for 50 to 80 years are most vulnerable to negative impacts from uncontrolled fires.

Wildland-Rural Intermix

Rural intermix sites consist mainly of scattered ranches and recreation areas along the Missouri River. Private ranches are located adjacent to BLM land. Vegetation consists of grass and sagebrush with scattered pockets of timber and croplands near most ranches. Recreation sites along the Missouri River include the Richard Wood Watchable Wildlife Area, Coal Banks Landing, Judith Landing, McClelland-Stafford Ferry, and James Kipp Recreation Area.

Special Designations

Upper Missouri National Wild and Scenic River

The Missouri River supported periods of exploration, fur trade, steamboat navigation, military activity, early settlement, development of the livestock and farming industries, homesteading, and today provides a great deal of recreation. The scenery along the river is interesting and varied, changing from a broad valley rich in riparian vegetation below Fort Benton, to the unique and beautiful White Cliffs below Coal Banks Landing, to the sharply carved and rugged badlands below Judith Landing, to the rolling pine and juniper covered slopes of the Breaks below Cow Creek. These contrasting habitats also provide for a diverse and plentiful wildlife population.

Boating the Missouri River just for the sake of being on the water occurs, but the beauty and the solitude along the route are highly important to many visitors. For the history buff, the river is an avenue into the past, providing the opportunity to visit the sites of prehistoric and historic events to try to imagine how it was and much of the attention focused on the Missouri River results from its long and colorful history. For the wildlife enthusiast, especially the bird watcher, the river is a living museum of natural history. For those

interested in geology, the river has exposed a fascinating display of Cretaceous age formations and the effects of more recent faulting and volcanic eruptions. Subsequent erosion has created a unique array of strangely beautiful land forms.

The river valley's unique beauty and abundant wildlife have been noted ever since the Lewis and Clark expedition passed through here in 1805. In our modern, urbanized, high tech society, the area's pristine scenery and opportunities for solitude and recreation in an unconfined setting are extremely important values.

Formal recognition of the Missouri River's significant recreational values was first provided by the State of Montana in 1966, when it was designated a component of the Montana Recreation Waterway System. The importance of these values was confirmed in 1976 when the National Wild and Scenic Rivers Act, as amended by Public Law 94-486 (90 Stat. 2327), incorporated the 149-mile segment of the Missouri River from Fort Benton downstream to the Fred Robinson Bridge within the National Wild and Scenic River System.

As required by Congress, the BLM completed a management plan (BLM 1978 and 1993) which established boundaries; designated portions of the river as wild, scenic or recreational; and developed management guidelines. The boundaries were established as rim-to-rim (or the area seen from the river), except for the portions between Fort Benton and Coal Banks Landing (river mile 1 to 41.3), and within the Charles M. Russell National Wildlife Refuge (river mile 138.8 to 149), where a bank-to-bank boundary was established by Congress. The various portions of the river were designated as outlined in Table 3.15.

A unique provision of the Act (P.L. 94-486) was that the Missouri River also be managed in accordance with the provisions of the Taylor Grazing Act (48 Stat. 1269), as amended (43 U.S.C. 315), under principles of multiple use and sustained yield as long as this management stays consistent with the provisions of this Act (P.L. 94-486) and the Wild and Scenic Rivers Act (P.L. 90-542). Management of the Missouri River is currently guided by the Upper Missouri National Wild and Scenic River Plan (1993). The plan will be updated after this RMP/EIS is finalized.

In 1978, the Lewis and Clark National Historic Trail was designated. The Missouri River is recognized as a premier component of that system. The expedition spent the better part of 21 days along this segment of the Missouri River during the outbound trek (including more than a week at the Marias River campsite), and Captain Lewis spent an additional four days here during the return trip. Twelve of their outbound campsites have been carefully located as have three of the return campsites. Nowhere else along the route of the "Corps of Discovery" are the opportunities better for

Table 3.15 Management Classifications and Boundaries for the Upper Missouri National Wild and Scenic River				
<i>River Miles</i>	<i>Place Name</i>	<i>Length (Miles)</i>	<i>Management Classification</i>	<i>Management Boundary</i>
1 to 41.3	Fort Benton to Coal Banks Landing	41.3	Recreational	Bank-to-Bank
41.3 to 52	Coal Banks Landing to Ebersole Bottom	10.7	Recreational	Rim-to-Rim
52 to 85	Ebersole Bottom to Deadman's Rapids	33	Wild	Rim-to-Rim
85 to 92	Deadman's Rapids to Holmes Rapids	7	Recreational	Rim-to-Rim
92 to 99	Holmes Rapids to Leslie Point	7	Wild	Rim-to-Rim
99 to 104	Leslie Point to Magdall Homestead	5	Scenic	Rim-to-Rim
104 to 128	Magdall Homestead to Cow Island	24	Wild	Rim-to-Rim
128 to 138.8	Cow Island to Grand Island	10.8	Scenic	Rim-to-Rim
138.8 to 149	Grand Island to Fred Robinson Bridge	10.2	Scenic	Bank-to-Bank

The Wild and Scenic Rivers Act, Section 2(b) defines the classifications of wild, scenic and recreational as follows:

- Wild:** Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- Scenic:** Those rivers or sections of rivers that are free of impoundments, with shorelines or watershed still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- Recreational:** Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

reading the journals of Lewis and Clark and experiencing the scenes that are described. The magnitude of the undertaking, the stature of the men, and the quality of their work take on new meaning in this little-changed setting.

There are now 274 identified archaeological sites along the river, and 90% of the BLM land within the UMNWSR remains to be inventoried. These sites include tipi rings, drive lines and rock cairns along the rims and butchering, processing and camping sites across the river terraces. Sites along the rims are often fully exposed, while terrace sites are usually buried. These sites date from 10,000 years ago, and several of them have proven to be very significant. Two major archaeological sites, Holmes Terrace and Lost Terrace, have been excavated, greatly adding to the database from which to develop visitor information and interpretation. Both man and the meandering nature of the river are having serious impacts on these sites.

A total of 102 historic sites relate to the fur trade, steamboat era, early settlement and homestead days. Interpretive projects have been implemented and stabilizations attempted in an effort to help protect these resources for the benefit and enjoyment of present and future generations.

Most of the known paleontological resources in the planning area have been located along the river. BLM surveys in 1983/84 between Judith Landing and U.S. Highway 191 identified 104 sites in the Judith River Formation. These sites varied from incomplete dinosaur skeletons, to diverse invertebrates, to "wash" sites consisting of small teeth, scales, vertebra and similar materials.

Wild and Scenic Rivers

Appendix I lists the streams that were assessed for Free-Flowing and Outstanding Remarkable Values. The BLM will adhere to Sections 1(b) and 16(b) of the Wild and Scenic Rivers Act when determining eligibility.

Wilderness Study Areas

Antelope Creek

The Antelope Creek Wilderness Study Area (WSA) is located on the north side of the Missouri River in Phillips County and contains 12,350 acres of BLM land. It is contiguous on its south side with the Charles M. Russell

National Wildlife Refuge (CMR). This WSA is bounded on the north by Fortress Butte, Hideaway Ridge and the Bull Creek Road, and private, state and BLM land; on the west by the Power Plant Ferry Road; on the south by the Missouri River, CMR and private land; and on the east by private land lying adjacent to U.S. Highway 191.

The unit has typical river Breaks topography with steep, highly eroded coulees formed by tributaries that drop toward the Missouri River. Most of the unit is barren or sparsely vegetated. Where slopes and soil allow, vegetation usually includes short prairie grasses, sagebrush and greasewood. Juniper, ponderosa pine, lodgepole pine and Douglas-fir grow along the coulees, covering about 20-30% of the area. An occasional cottonwood can be found there or along the river.

The rough terrain of Antelope Creek has restricted most manmade features to ridge tops where 12 vehicle ways have provided vehicle access to the WSA. These ways are dispersed throughout, with several radiating out from the eastern boundary of the WSA. The WSA contains one reservoir which creates no impact on the apparent naturalness of the WSA.

The few developments in the WSA are used to facilitate livestock grazing and provide hunting access, and would not require substantial rehabilitation if the area became wilderness. The vehicle ways on ridges, used mainly for seasonal hunting or sightseeing, would revegetate from lack of use.

The Antelope Creek WSA has outstanding opportunities for solitude. The rugged terrain, characterized by a number of parallel drainages opening to the Missouri River, screens most activities that may occur on nearby ridge tops. The off-site impacts affecting solitude include vehicle use on the surrounding roads. Traffic volume on the Antelope Creek Road is low during the spring and early summer, but increases substantially during late summer and fall use by hunters. The broken topography near the road limits the impacts to areas adjacent to the road. Periodic traffic is visible on the Power Plant Ferry Road along the northern and western borders during the dry summer months, but the traffic only impacts areas within one-half mile of the northern boundary of the WSA.

While no single recreational opportunity was identified as outstanding, the WSA provides a diversity of primitive recreation opportunities including hunting, horseback riding, hiking, photography and rock climbing. Hunting is currently the most popular activity, normally occurring with vehicles along ridges. The Missouri River is also an important recreational addition. Visitors floating the river can camp along the unit's shoreline, fish from the shore, hike the coulees, and enjoy the outstanding scenery.

Public access into the WSA is available along the Power Plant Ferry Road, the Antelope Creek Road, and from the Missouri River by boat, but most other access routes are controlled by private landowners. Rain or snow can make any of the dirt access roads impassable. Weather conditions normally limit access to May-October or to dry road conditions.

Artifacts of both prehistoric and historic eras may be found in the WSA. Of particular historic significance is Kid Curry's Outlaw Hideaway, just north of the WSA on private land. In this WSA, 35% of the acreage is within the Upper Missouri National Wild and Scenic River. The area has a scenic designation, which means the area will be managed to preserve the scenic and natural characteristics.

Cow Creek

The Cow Creek WSA lies north of the Missouri River and contains approximately 34,050 acres. The river is the southern boundary of the Cow Creek WSA. Forming the east, west and northern boundary of the WSA are roads, private land and state land, or the natural topographical contours. Boundaries are extremely difficult to locate on the ground except for along the roads.

Most of the terrain is rugged and steep along the numerous drainages that feed into Cow Creek and the Missouri River. The Bull Creek-Winter Creek drainages have spectacular sandstone cliffs forming the drainage walls. In sharp contrast, some parts of the WSA are rolling open prairie, particularly toward the southeast corner. Where slopes and soil allow, the vegetative cover is predominantly short prairie grasses, sagebrush and greasewood. Ponderosa pine, lodgepole pine, Douglas-fir and juniper are prevalent throughout the WSA, with the densest stands growing along the northern end.

A number of vehicle ways, reservoirs, and fences are located on Winter Ridge in the area recommended suitable for wilderness. These developments are screened from view by rolling, hilly terrain, as well as by many trees and shrubs; so altogether this does not impact naturalness from some vantage points. The remainder of the area recommended suitable for wilderness has a natural appearance.

Several developed areas are within parts recommended nonsuitable and adversely affect naturalness. A 600-acre area east of Saskatchewan Butte (T25N R23E, Section 31 and T24N R23E, Sections 5, 6, 7 and 8) has 2 reservoirs, one diversion dam, 3 vehicle ways and a power line, all easily visible. The WSA also contains 2 drilling pads, several miles of vehicle ways, reservoirs, and fences. Most of these features are screened by timber and broken terrain; however, they create an impact on naturalness from some vantage points.

Solitude opportunities are outstanding in the Cow Creek WSA. The topography provides excellent screening. Solitude opportunities are best along Gore, Cabin, and Winter Creeks and the lower reaches of Bull Creek, primarily in areas recommended suitable for wilderness designation. The size of these drainages, combined with their lack of development, supplement solitude. One cherry-stemmed road is in the area recommended suitable for wilderness. Some potential exists for disruption of solitude to persons on or near this road from periodic vehicle use.

Solitude values in the parts of the Cow Creek WSA recommended as non-suitable would be affected by the unit's configuration and 3 cherry-stemmed roads. A home site is occupied during the summer, and a road is also visible (T25N R23E, Section 31 and T24N R23E, Sections 5 and 6). Visitors to areas outside the major drainages and nearer the perimeter of the WSA, primarily parcels in the WSA that were recommended as nonsuitable, have more potential for human contact.

Recreation in the Cow Creek WSA includes hunting, horseback riding, hiking, photography and rock climbing. Hunting is the most popular activity at the present time. It is normally limited to areas around access roads because of the difficulty of retrieving game. The Missouri River, adjacent to the part of the area recommended as suitable for wilderness, has increased the public's awareness of recreational opportunities in the WSA. People floating the river often stop to hike and explore within the unit. Several good camping sites can be found along ridges or near the river.

Scenic features are a notable attribute of the Cow Creek WSA. Of particular beauty is a 4-mile long, sheer wall of sandstone that lies on the west side of the Winter Creek drainage in a portion of the WSA recommended as suitable for wilderness. Wind and water have carved this wall into many castle-like formations suitable for climbing.

The WSA is also historically rich. The Winter Creek Drainage was used for catching wild horses at the turn of the century. The box canyon above the creek formed a natural corral called Horse Thief Pass. Along this canyon and near Shetland Divide names are etched in the sandstone that date back to the early 1900s. Additionally, tipi rings, rock cairns, and a buffalo jump indicate that the area was used extensively by early peoples. Along the western boundary, the Nez Perce Indians traveled north along Cow Creek during their escape attempt to Canada in 1877.

Most public access into the Cow Creek WSA is available along the southern boundary, either via the Missouri River or the Bull Creek Road. Other access is controlled by private landowners. Wet weather and snow normally restrict access to May-October or to dry road conditions.

Dog Creek South

The Dog Creek South WSA consists of about 5,150 acres of BLM land on the south side of the Missouri River in Fergus County. The WSA boundary on the north is the river's edge, and on the south by the Dog Creek Road. Elsewhere, property ownership lines are not easily discernable on the ground.

The WSA is fairly compact, about 5 miles long and 1 to 3 miles wide. Drainages of intermittent streams are extremely steep and are separated by narrow, barren ridges. The WSA contains very little screening vegetation, but topographic screening is abundant due to the rugged river Breaks topography. Since steep slopes run from the overlooking ridges down to the river, visitors would probably be channeled to a few areas along the Missouri River to isolated pockets between minor drainages or along flat ridge tops.

A total of 10 manmade features are found in this WSA. They are mostly scattered and well screened, but one vehicle way (route) is the exception. Traversing the northern end of the unit for about 4.75 miles, this route is easily visible from the river and from the ridge tops. Although the route is revegetating in places through lack of use, it is a major infringement on the naturalness of the WSA's northern end. Mechanical rehabilitation would probably create more damage than if the way were allowed to revegetate over time.

The other manmade features are mostly associated with livestock grazing. Because of the location of most manmade features, boundary modifications would not significantly increase the apparent naturalness of this WSA.

Overall, solitude in this unit is affected by continuing agricultural operations adjacent to the northern and western parts of the Dog Creek South WSA, and these opportunities are limited to isolated drainages in the center of the WSA.

Developments within a few hundred yards of the WSA's southern edge influence solitude because of the dust and noise caused by moving vehicles and people. Extensive farming operations are also readily visible from the WSA, being from 400 yards to 1/2 mile away in much of the unit. From spring to fall, farm vehicles are regularly used on adjacent fields.

Motorized traffic down the Missouri River, and road traffic on Montana Secondary 236 and the PN Bridge across the Missouri further infringe on solitude, adversely affecting approximately 2,000 acres on the north and west sides of the WSA. True solitude is available only in the center and eastern portions of the unit.

The WSA's location on the Missouri River contributes to the primitive recreation opportunities found here, which include fishing from the shore, waterfowl hunting, and camping. Other possible recreational uses include hiking, horseback riding, nature study, and photography. Present uses are primarily sightseeing (by vehicle), hunting for mule deer, and camping along the river. The nearness to Montana Secondary 236 traffic and farm-ranch operations in this general area makes the river campsites in the Dog Creek WSA less desirable than other locations along the Missouri River. Some camping sites can be found on the long ridges inside the unit, although the lack of trees and water makes camping there less attractive. Like the other WSAs near the Missouri River, Dog Creek South provides good hunting. Possible detriments to hunting are restricted access through private land, the difficulty of retrieving game, and fluctuating game populations.

The area is remote from population centers and inaccessible in wet or snowy weather. The user season would be from May-October, in dry conditions only. Physical hazards to visitors in the area include rattlesnakes, steep terrain, lack of drinking water, and the difficulty of travel in wet weather. The lack of forest vegetation, outside distractions, narrow, long ridge lines, the channeling of visitors into the deep drainages, and the small size of this WSA all mean the Dog Creek South WSA does not offer outstanding opportunities for wilderness recreation.

Ervin Ridge

The 10,200-acre Ervin Ridge WSA is just north of the Missouri River and 10 miles east of the McClelland-Stafford Ferry Crossing. Nearly 50% of the WSA lies within the UMNWSR. All the land within its border has federal surface and subsurface ownership.

About 10 miles long and 0.25 to 0.75 miles wide, this unit is irregularly shaped. The rugged topography of steep and highly eroded ridge lines tapers to narrow edges before dropping to the Missouri River. The terrain provides solitude but the steep slopes also channel visitors along the river and to the ridge tops. Where slopes and soils allow, the vegetation cover is predominantly short prairie grasses and sagebrush, while 20% of the area has groves of ponderosa and lodgepole pine, juniper and Douglas-fir. An occasional cottonwood is found along the river. Vegetation growing along drainages and on some ridge tops provides some screening, primarily in the eastern half of the unit.

Solitude in certain parts of the Ervin Ridge WSA is affected by the configuration of this unit, outside impacts, and by two cherry-stemmed roads. Inside the unit, the wilderness user is never more than a mile from the boundary. Farming, vehicle traffic on the boundary, cherry-stemmed roads, and activities around three home sites near the west side are

distracting. On the Barnard and Pendell Ridges, intensive wheat farming borders the WSA, while farming operations across the river can be seen from the unit's ridge tops. Motorized traffic on the Missouri River, while slight, is a further infringement on solitude. The best opportunity for solitude is in the southeastern part of the WSA.

Hunting and recreation on the Missouri River are presently the two most common forms of recreational use in the Ervin Ridge WSA. Hunting usually involves vehicles traveling along the ridge tops or the use of boats. Inside the WSA, hunting is a challenge because retrieving game is complicated by the steep slopes.

Other forms of primitive recreation that could occur in the unit include horseback riding, hiking, sightseeing, photography, and shoreline fishing.

The road access to the WSA is through private land on the Ervin and Barnard Ridge roads and by boat from the Missouri River. Public vehicle access is obtained only by the landowners' permission. Wet weather and snow often make these dirt roads impassable and can quickly seal off the area, limiting access to May-October during dry weather.

Although opportunities exist for recreation, the WSA's steep terrain channels use along the river, along coulee bottoms or on finger ridges. The lack of vegetation and drinking water, difficulty of travel during wet weather, and rattlesnakes increase the hazards of recreation in the unit.

Stafford

The 4,800-acre Stafford WSA is just north of the Missouri River between the PN Bridge and McClelland-Stafford Ferry in Chouteau and Blaine Counties. This unit includes 4,346 acres within the Upper Missouri National Wild and Scenic River: 425 acres in the scenic section, 113 acres in the recreational section, and 3,808 acres in the wild section. Parts of the WSA are bounded by the Birch Creek Ridge Road, the Boiler Bottom vehicle way, state land, BLM land, the Missouri River, and private land. All the land within its border has federal surface and subsurface ownership.

The rugged terrain of the Stafford WSA has limited human imprints, which helps retain the natural appearance. Developments are few and scattered, lying primarily on the unit's periphery. The manmade features are of low significance being substantially unnoticeable. Because of their location, boundary modifications would not significantly increase the apparent naturalness of this WSA.

The few developments inside the unit are mostly associated with livestock grazing. As with all WSAs, facilities would not be rehabilitated if they were found to be unnecessary for grazing management. Vehicle ways that follow ridges and

are used primarily for seasonal hunting or sightseeing would revegetate naturally if not used.

The Stafford WSA is long and narrow, stretching 8 miles in length and 0.5 to 1.5 miles in width. It is found in a rugged portion of the Missouri Breaks with steep and highly dissected coulees that are often sparsely vegetated. Where slopes and soils permit, vegetation is composed of prairie grasses, sagebrush, and juniper. Patches of cottonwood parallel the river and juniper and pine grow in a few isolated groves.

Since the unit has few tall plants, very little screening is available from vegetation but topographic screening is abundant. Steep slopes running down from ridges overlooking the Missouri River would probably channel visitors into a few areas along the river to isolated pockets between minor drainages or along flat ridge tops. This decreases the opportunity for solitude in this unit.

The opportunity for solitude is also affected by adjacent homes, vehicle use along surrounding roads, boat travel on the river, and four farm-ranch operations next to the WSA. Fields are farmed up to the WSA boundary in the northeast end and other farming operations are within 0.75 miles of the WSA. Farm equipment is occasionally visible and audible during the main recreational season of May-October. The farming operation in Section 13 has an aircraft runway and the operators regularly fly over the WSA.

The county road to the McClelland-Stafford Ferry, immediately across the river from the east end of the Stafford WSA, is well used during the summer. A hayfield and home site are also just opposite the east end of the Stafford WSA, and the sight and sound of its irrigation system is present throughout the summer growing season. On the west end of the Stafford WSA, solitude is reduced by nearby farming operations.

Typical recreational opportunities in the Stafford WSA include horseback riding, hunting, hiking, sightseeing, photography and shoreline fishing. Hunting is the major use, and usually involves vehicles traveling along the ridge tops of the north boundary. Travelers along the Missouri River can find limited campsites along the shorelines of the WSA and can hike the coulees or enjoy the area scenery.

Although some opportunities exist for primitive recreation, use is limited in various ways. The steep terrain channels use along the river or the finger ridges, while the lack of screening vegetation limits campsites to the few scattered groves of trees along the Missouri River. Rattlesnakes, lack of water and difficulty of travel during wet weather present hazards to the wilderness user.

This WSA, like almost all of the Missouri River Breaks, contains features of scenic and historic value. Steep coulees

and clay cliffs offer stark contrast to the Missouri River. Evidence of the area's use by Indians and homesteaders can be found in the WSA, and an old wagon road forms its eastern border.

Woodhawk

The Woodhawk WSA is on the south side of the Missouri River in Fergus County and consists of 8,100 acres of BLM land. This WSA is bounded on the north by Sunshine Spur Road and BLM land; on the west by Woodhawk Trail road, state and BLM land; on the south by the Two Calf and DeMars roads; and on the east by the Missouri River and private land.

The WSA is compact, 4 miles long by 2.5 to 4 miles wide, with the distance from the center to the perimeter about 1.5 to 2 miles. The WSA is typical of broken topography in the Missouri River Breaks. The south slopes are open banded clay supporting short grasses. Two-thirds of the WSA supports ponderosa pine, juniper, and a few Douglas-fir trees. Two major drainages flow east-west into the Missouri River, leaving a deeply eroded landform in their wake.

A cluster of reservoirs are located in the southern third of the area in T23N R21E, Sections 25, 26, and 27, which adversely affect natural values. The cherry-stemmed Deweese Ridge Road, which ends 1.5 miles inside the area's boundary, detracts from naturalness in the center of the unit.

The manmade features inside the unit are mostly associated with livestock grazing. Boundary modifications would not significantly increase the WSA's apparent naturalness because the manmade features are dispersed throughout the area.

The Deweese Ridge Road, located in the middle of the WSA, is on a high, open ridge and is heavily used during the big game hunting season. This road is the only access to the central portion of the area and dead ends in the middle of the WSA. This dead end tends to concentrate both motorized and nonmotorized users, detracting from the wilderness experience. Vehicle traffic is not the only distraction. Farming operations to the south and north are visible and often audible, affecting the overall opportunity for solitude from the high ridges and hilltops.

Primitive recreational possibilities in the unit consist of rock climbing on the cliffs (T23N R21E, Sections 13 and 24), horseback riding on the ridgelines or main drainages, hiking, hunting, and sightseeing. Recreation users presently drive motorized vehicles on Deweese Ridge Road or on Sunshine Spur Road located in T23N R21E, Sections 1, 2, 11, and 12. These roads are also used for fire control. Floaters use some camping areas along the river, even though no potable water is available in the unit. Good campsites can also be found along Deweese Ridge in the

middle of the WSA. Although access is very good, rain or snow can quickly seal off the area, limiting the user season to May-October in dry conditions. Hunting quality is restricted by the difficulty of game retrieval and by fluctuating game populations. Rattlesnakes and the steep slopes provide hazards to unwary visitors.

The WSA contains several prehistoric occupation sites. In historic times, woodhawkers cut timber there to fuel steamboats on the Missouri River (hence the name of this area), and the unit was probably traversed by Chief Joseph's Nez Perce in their attempt to escape to Canada in 1877.

Cow Creek Area of Critical Environmental Concern (ACEC)

The Cow Creek ACEC is in southeastern Blaine County. Approximately 18,800 acres are inside the unit. Although the majority of the area is BLM land, 4,000 acres (21%) of the creek bottom are privately owned. Three tracts of state-owned land (800 acres) are scattered along the unit's border.

The Cow Creek area contains a portion of the Nez Perce National Historic Trail; a portion of the Lewis and Clark National Historic Trail; the Cow Island Trail; high scenic quality; and important paleontological sites. All of these resources are unique to the area. The Cow Creek emphasis area also overlaps portions of the UMNWSR and the Cow Creek WSA.

A premier portion of the Nez Perce (Nee-Me-Poo) National Historic Trail is found in the Cow Creek area. This portion has been recognized as extremely important for several reasons. First, it runs through an area that is largely unchanged since the Nez Perce made their famous journey in 1877. It is also an area where an extensive portion of this trail has remained in federal ownership.

The ACEC also includes a portion of the regionally significant Cow Island Trail. It was the main overland route for carrying persons and goods from the Cow Island Landing to Fort Benton, when the steamboats could not advance upstream due to low water. The scenery of the land is still extremely similar to that period of time. This portion of the trail is no longer used by vehicle traffic. Some abandoned outbuildings still lie in the vicinity of the trail.

The Lewis and Clark National Historic Trail (the Missouri River) forms the southern boundary of the Cow Creek area.

The entire landscape is extremely dissected with steep cliffs and rock outcroppings. Sharp contrasts between the creek bottom and overlooking ridges are evident. The topographic difference in the area can range nearly 800 vertical feet over distances less than 1 mile.

The area has significant paleontological values. Early explorations (1870s-1880s) yielded many new fossils, particularly dinosaurs. Though most were identified by incomplete skeletons, a dinosaur (Triceratops) was found in the Eagle Sandstone at the mouth of Cow Creek.

Social and Economic Conditions

Social

Below is a discussion on some of the social trends and changing attitudes that affect BLM land management, followed by a focus on the four counties in central Montana in which Monument land is located, and Hill County, which is adjacent to the Monument counties and contains the largest community in the northern tier of counties. The four counties with Monument land are: Blaine, Chouteau, Fergus, and Phillips. The social study area includes these four counties plus Hill County.

Social Trends and Attitudes

This section focuses on social trends and attitudes that affect BLM land management.

One trend is the increasing popularity of BLM land for recreation. A comprehensive report on recreation by Cordell (1999) indicates demand in the Rocky Mountain West for recreation activities will increase substantially by the year 2020 with nonconsumptive wildlife activities, sightseeing and visiting historic places having the greatest increases. A related trend is the increasing interest in the history of exploration and settlement in the western United States such as the Lewis and Clark Expedition. In a study of visitors to the Fort Benton riverfront area (McMahon 2001), nearly 50% of the respondents indicated they were motivated by an element of Lewis and Clark history to visit the site.

Another issue is maintaining access to BLM land if access through private land is required to reach the BLM land. In addition, the loss of access to some private land, for the general public, is putting more pressure on BLM land. These changes are linked to the pursuit of a quality recreation experience and occur for a variety of reasons such as: lands are purchased for recreation and home sites and closed to others; lands are leased to outfitters for exclusive use; and private land and roads are closed to avoid problems with safety, fire, fences, weeds, litter and open gates.

A third trend that is occurring in the nation and Montana is the aging of the population. In 2000, 14% of the population in Blaine, Chouteau, Fergus, Hill and Phillips Counties was 65 years and over. In the state as a whole, the percentage of population 65 years and over is expected to increase to 25%

in 2025. The percentage of people over 65 is actually increasing more rapidly in states like Montana because young people are more likely to leave for advanced education, military service and employment opportunities not available locally.

Changes in the management of BLM land are just one aspect of a broader debate on environmental and resource management that is occurring locally, nationally and globally. Social values for lands and natural resources can take many forms such as commodity, amenity, environmental quality, ecological, recreation, spiritual health and security (Stankey and Clark 1991). While the commodity interest has been prevalent in the past, a study examining public attitudes toward ecosystem management in the United States found “generally favorable attitudes toward ecosystem management (defined as maintaining ecosystem health, protecting and restoring biodiversity and ensuring sustainability) among the general public.” (Bengston et al. 2001)

A nationwide survey conducted in 2000 by Roper Starch Worldwide (2001) offers information on attitudes toward environmental regulation. Respondents were asked whether they thought environmental laws and regulations had gone too far, had not gone far enough, or had achieved the right balance. Over three times as many respondents thought laws and regulations had not gone far enough (46%) as those who thought laws and regulations had gone too far (15%). Nearly a third of the respondents (32%) thought that the laws had struck the right balance. These three figures have been fairly stable since 1995. When respondents were segmented by residence in urban versus rural areas, the figures for “not gone far enough” were 52% and 38% respectively. In addition, only 36% of the respondents who hunted in the last year thought laws had “not gone far enough.”

When similar questions were asked at the national level regarding the current regulation of specific environmental issues, the following percentages thought regulations for these specific issues had not gone far enough: water pollution (70%), air pollution (63%), wild or natural areas (50%), wetlands (44%), and endangered species (39%). Conversely, the following percentages thought regulation of specific environmental issues had gone too far: endangered species (5%), wetlands (11%), wild or natural areas (11%), air pollution (7%), and water pollution (5%). When respondents were segmented by residence in urban versus rural areas, the figures for “not gone far enough” to protect wild or natural areas were 54% and 44% respectively.

In the rural West, in places where land use has been unrestricted, concern is being expressed by some individuals and groups regarding the control and management of BLM land. People with these concerns feel that change in BLM land management is being driven by government

officials and environmental advocacy groups who do not have a true understanding of the lands or the people living nearby who depend upon these lands for their livelihood and recreation. Of particular concern is the loss of current uses of the land such as livestock grazing and cross-country vehicle use. People with these concerns seek to balance what they consider to be “environmental extremism” with economic and human concerns. They may feel that local elected officials, who deal with their problems on a daily basis, are better equipped to make decisions about BLM land.

Social Study Area Counties and Communities

The 2004 population of the social study area (including Blaine, Chouteau, Fergus, Hill and Phillips Counties) was 44,359, a decrease of 4% since 2000. During the decade 1990 to 2000, the study area population grew less than 1%. The social study area population is projected to be about the same in 2020. The area is very sparsely settled with 2.2 persons per square mile compared to a figure of 6.2 for the state as a whole. The population of the social study area is 80% white and 17% American Indian. (The remaining 3% includes Blacks, Asians and Pacific Islanders, and people of two or more races.) The American Indian population is concentrated in Blaine County, which is nearly 50% American Indian. The median family income in the social study area is lower than for the state (\$28,858 versus \$33,024), and the percentage of persons below the poverty level is higher (21.1% versus 14.6%).

Blaine County, which is located north of the Missouri River, had a 2004 population of 6,668, a decrease of 5% since 2000. It grew 4% during the decade 1990 to 2000 and is the only social study area county that is projected to grow by 2020. Of the social study area counties, Blaine has one of the lowest percentage populations 65 and over, and the highest percentage of American Indians. Chinook, the county seat, had a 2004 population of 1,315, a decline of 5% since 2000. Blaine County is home to the larger part of the Fort Belknap Indian Reservation. Two reservation communities are located within 50 miles of the Missouri River. These communities are Hays with a 2000 population of 702, and Lodge Pole with a population of 214. In 2002, Blaine County was home to 588 farms and ranches. The number of farms and ranches increased 14% during the period 1992 to 2002, while the amount of land in farms and ranches and the average size of these operations decreased by 3% and 15%, respectively (U.S. Census of Agriculture 2002). Farming/ranching was the principal occupation of 70% of the farm/ranch operators.

Chouteau County, which is located in the western part of the social study area, had a 2004 population of 5,575, a decrease of 7% since 2000. Chouteau County had a population increase of nearly 10% during the decade 1990 to 2000.

It is expected to continue to decrease slowly by 2020. Fort Benton, the county seat, is home to the BLM Fort Benton Visitor Contact Station and the place where many floaters enter the Missouri River. Fort Benton had a 2004 population of 1,506 and lost 6% of its population between 2000 and 2004. Other small communities located close to the Missouri River include Loma with a population of 92 and Big Sandy with a population of 703. The Rocky Boy's Indian Reservation is located in Chouteau and Hill Counties. Chouteau County was home to 787 farms and ranches in 2002. The number of farms, amount of land in farms, and average size of the farms has been relatively stable in the recent past (U.S. Census of Agriculture 2002). Farming/ranching was the principal occupation of 85% of the farm/ranch operators.

A survey conducted for the City of Fort Benton (2002) indicated over 70% of the respondents thought it was an excellent or above average place to live. Things people liked best about living in the area included: safe/low crime, small size/small town feeling, the friendly caring people, the quiet and peacefulness, the river, and many other attributes related to the area and its residents. Lack of job opportunities and a stagnant/weak economy were two of the main things respondents did not like about living in the area. Bringing businesses to town and creating jobs to attract young people were two of the things respondents indicated could be done to make Fort Benton a better place to live. Nearly 75% of the respondents had lived in the area more than 10 years.

Fergus County, which is located south of the Missouri River, had a 2004 population of 11,539. It lost 3% of its population between 2000 and 2004 and is projected to continue to lose population very slowly (with a decrease of less than 1% predicted in 2020). Fergus County has the highest percentage of population 65 and over of the social study area counties, and the lowest percentage of American Indians. Lewistown, the county seat, is home to the Monument Headquarters. Lewistown had a 2004 population of 6,116, an increase of 5%. Winifred, a ranching community located 14 miles south of the Missouri River, had a 2004 population of 150. In 2002, Fergus County had 830 farms and ranches. The number of farms, amount of land in farms, and average size of the farms has been relatively stable in the recent past (U.S. Census of Agriculture 2002). Farming/ranching was the principal occupation of 69% of the farm/ranch operators.

Hill County, located north of the Monument, does not actually contain any Monument land. Hill County had a 2004 population of 16,376, a decrease of 2% from 2004. Havre, the county seat, is the largest community on the HiLine. Havre had a 2004 population of 9,460.

Phillips County is located north of the river and east of Blaine County. It had a 2004 population of 4,201, a decline of 8% since 2000. It lost over 10% of its population during the decade 1990 to 2000 due to the closing of gold mines in the Zortman and Landusky areas. The county population is expected to continue to decline by over 6% by 2020. Malta, the county seat, had a 2004 population of 1,940. In 2002, Phillips County was home to 489 farms and ranches. The number of farms and ranches increased 10% between 1992 and 2002 while the average size decreased 4% (U.S. Census of Agriculture 2002). Farming/ranching was the principal occupation of 72% of the farm/ranch operators.

Note: All population figures, except for the 2004 figures, are from the 2000 Census.

Table 3.16 lists population and social characteristics for the five counties in the social study area and for the State of Montana as a whole.

Affected Groups and Individuals

Discussions of affected groups and individuals are included to facilitate the assessment of social impacts. The following groups and individuals will be discussed: ranchers and livestock permittees, groups and individuals who give a high priority to resource protection, recreationists, and groups and individuals who give a high priority to resource use. It should be noted that these groups are not mutually exclusive and examples of households fitting into all categories are likely to be present. This section is based predominately on the information collected during the initial scoping process.

Ranchers and Livestock Permittees

Ranching is an important part of the history, culture and economy of the study area. There are many challenges facing ranchers today including changes in federal regulations, economic issues and changing land use. Permittees may face increasingly stressful social situations as they try to balance their traditional lifestyles with demands from government agencies and other public users such as recreationists. Many of the comments received during scoping indicated the BLM should maintain current management for cattle grazing, access routes into the Monument, and water developments for wildlife. Other issues of concern include weed control, potential future policy changes and maintaining access to private lands. According to these commenters, the current farmers and ranchers have maintained the area in a manner that can be appreciated by others just traveling through. These farmers and ranchers would never waste their resource because it would mean an end to a valued way of life.

Table 3.16
Population and Social Characteristics for Counties in the Social Study Area in 2000, 2004

	<i>Blaine</i>	<i>Chouteau</i>	<i>Fergus</i>	<i>Hill</i>	<i>Phillips</i>	<i>5-County Study Area</i>	<i>State of Montana</i>
2004 Population	6,668	5,575	11,539	16,376	4,201	44,359	926,865
% Change from 2000-2004	-4.9	-6.6	-3.0	-1.8	-8.7	-3.9	2.7
2000 Population	7,009	5,970	11,893	16,673	4,601	46,146	902,195
% Change from 1990-2000	4.2	9.5	-1.6	-5.6	-10.9	.2	12.9
Projection 2020	7,150	5,760	11,820	16,650	4,310	45,690	1,085,520
% Change from 2000-2020	2.0	-3.5	-0.6	-0.1	-6.3	-1.0	20.3
Persons/Sq. Mi.	1.7	1.5	2.6	5.8	0.9	2.2	6.2
% 65 and Over	12.9	17.5	19.9	12.8	17.6	16.1	13.4
% White	52.6	84.0	97.1	79.5	89.4	80.5	90.6
% American Indian	45.4	14.6	1.2	17.3	7.6	17.2	6.2
% HS Grad - 2000	78.7	87.1	86.3	86.8	82.4	84.3	87.2
Median Household Income 1999	\$25,247	\$29,150	\$30,409	\$30,781	\$28,702	\$28,858	\$33,024
% Persons Below Poverty Level	28.1	20.5	15.4	18.4	18.3	20.1	14.6

Source: U.S. Department of Commerce, Bureau of the Census

Groups and Individuals Who Give a High Priority to Resource Protection

A variety of local, regional and national level organizations, along with their members and supporters, have shown a great deal of interest in this plan through input received during the scoping process. Many of their comments focused on protecting wildlife and native plants; historical, archeological, paleontological, geologic and cultural sites; air quality and visual resources. They indicated some ways to protect these features include limiting oil and gas development, recreation infrastructure and roads. They want the Monument to maintain its wild, empty, quiet atmosphere as an alternative to the hectic lives most people lead. These organizations indicate the condition of Monument resources is important because of wildlife, recreation, education, scenic, wilderness, open space and spiritual values and want these resources to be available in their current condition for future generations.

Recreationists

Recreation is a component of most lifestyles in the study area and is an important element of the overall quality of life

for many residents. In addition to local recreation use, recreationists from all over the United States visit the UMNWSR. Recreationists are very diverse groups of people and changes in recreation management can affect the people who engage in the various activities very differently.

Some comments on recreation concerned the potential loss of activities such as driving OHVs on roads and trails, traveling off road to retrieve game, driving off road to campsites, using motorized watercraft on the Missouri River and using backcountry airstrips. Some commenters indicated that opportunities for these activities are declining elsewhere. For each of these activities, some commenters discussed their importance to the lifestyles of the people who engage in them.

Other commenters, many of them river floaters, focused on maintaining a primitive, solitary, nonmotorized Monument recreation experience. Noise is a major issue to many of these users. Some mentioned their concern about the loss of an alternative to the world in which we live, where the noise of engines is all-pervasive, and the need to protect areas where natural quiet can be experienced. Research

confirms the importance of noise to recreationists. According to Gramann (1999), "Many surveys show that quiet, solitude, and natural sounds play important roles in recreation experiences. Recreation users consistently state that escaping noise and enjoying the sounds of nature are among the important reasons they visit natural areas."

Groups and Individuals Who Give a High Priority to Resource Use

Groups and individuals from both inside and outside the study area have expressed concern about limitations being put on the availability of Monument lands for commercial uses such as oil and gas development, livestock grazing and river use. Maintaining access to public and private lands in the Monument is also an important issue to them, as well as not restricting the amount or types of river use. They indicate the Monument lands need to be managed to help the survival of local economies and communities and are concerned that Monument designation may increase financial expenditures for county services such as wildfire suppression and search and rescue operations.

Environmental Justice

Executive Order 12898, Environmental Justice, requires each federal agency to identify and address the "...disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations"

American Indians (including some Alaska Natives) represented 17.2% of the population in the social study area. This population is concentrated in Blaine County whose population is nearly 50% American Indian. Two Indian Reservations are located in the social study area. The Fort Belknap Reservation is located in Blaine and Phillips Counties and the Rocky Boy's Reservation is located in Blaine and Hill Counties. The Fort Belknap Reservation, home to the Assiniboine, Assiniboine Sioux, and Gros Ventre Tribes, had a 2000 American Indian population of 2,790. The Rocky Boy's Reservation, home to the Chippewa-Cree Tribe, had a 2000 American Indian population of 2,578. Several tribes have shown an interest in the area for cultural purposes.

In 1999, 14.6% of the persons living in the State of Montana had incomes below the poverty level. This compares to an average of 21.1% for the social study area. Figures for the individual counties range from a low of 15.4% in Fergus County to a high of 28.1% in Blaine County.

Economic

The study area examined is comprised of five Montana counties: Blaine, Chouteau, Fergus, Hill, and Phillips Counties. Four of these counties contain Monument land and the fifth, Hill County, is an integral part of the regional economy affected by activities in the Monument.

The area was first described by Lewis and Clark as they passed through on their journey to and from the Pacific Ocean. The earliest economic market activity began as fur trappers entered the area seeking furs. This was followed by trading posts and gold seekers. The Missouri River was an important transportation route, with steamboats providing access to regional markets. The growth of mining activity provided a market for beef and ranching began to flourish in the 1860s. In the 1880s, railroads were constructed in the area and ranchers and miners obtained cheaper access to distant markets. A Homestead Act was passed in 1909 and farming was expanded as farmers moved into the area to take advantage of the low priced land, and wheat became an important export crop.

Population

Community characteristics, population characteristics, and population trends are discussed in the Social section of this chapter.

Employment

Employment can be viewed as a key economic indicator, as patterns of growth and decline in a region's employment are largely driven by economic cycles and local economic activity. The period of 1991 through 2000 was one of significant economic growth in the United States, with employment growing by almost 21%. During the same period, Montana experienced even faster growth than the nation, as employment increased by almost 26%. All of the counties in the study area had employment growth below the national and state growth rates, with two counties (Blaine and Phillips) experiencing declines. The following summarizes some notable changes in study area employment levels over the decade 1991 to 2000.

Employment in the study area grew over 8% during the 1990s, a significant increase over the previous decade when growth was less than 1%. Growth was not even across the study area (Table 3.17). At the high end of growth, Fergus County gained 943 jobs. At the low end, 84 jobs were lost in Phillips County.

Table 3.17
Change in Total Employment in Study Area
Counties, 1991 to 2000

<i>County</i>	<i>Number of Jobs</i>
Blaine	-4
Chouteau	+498
Fergus	+943
Hill	+716
Phillips	-84
Study Area Total	+2,069

Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, Regional Economic Information System (REIS), 1969-2000, CD-ROM, May 2002.

The fastest growing sector in the study area was agricultural services, which grew by almost 50% (259 jobs) (Table 3.18). The services sector gained the most jobs (1,490), while construction had the second largest gain (395 jobs). Mining had the largest relative job loss, declining by almost 45% (150 jobs) between 1987 and 2000. The transportation and public utilities sector had the largest job loss (208 jobs), followed by the military sector of the federal government, which lost 169 jobs. Losses in military jobs occurred in all five study area counties.

Employment in agriculture has been in long-term decline as labor productivity in agriculture has steadily improved. In the study area, however, farm and ranch employment increased by 300 jobs during the decade, not following this long-term trend. At the same time, employment in agricultural services in the study area increased by 259 jobs. Together these two sectors accounted for one-quarter of total job growth in the study area.

Employment in Blaine County remained relatively constant during the decade, with employment declining only slightly, by just one-tenth of 1% (4 jobs). The largest absolute growth was in the services sector (94 jobs), followed by government (27 jobs). Sectors with large declines were finance, insurance, and real estate (79 jobs lost), and farm and ranch (36 jobs lost).

Chouteau County experienced the largest relative growth in employment in the study area. All sectors experienced employment growth except government, which decreased by 4% (23 jobs). Farm and ranch employment grew by 13 jobs and agricultural services grew by 110 jobs, which together accounted for about half of the total growth. The finance, insurance, and real estate sector and the services sector both increased by over 100 jobs each, accounting for about 40% of total growth.

While relative employment growth was higher in Chouteau County than Fergus County, Fergus had greater total job growth, 943 jobs. The fastest growing sector was construc-

Table 3.18
Change in Employment, 1991 to 2000, Five-County Area, Montana

<i>Sector</i>	<i>Percent Change</i>	<i>Number of Jobs</i>
Total Employment	+8.6%	+2,069
Farm and Ranch	+7.6%	+300
Agricultural Services and Other	+48.9%	+259
Mining*	-44.9% *	-150 *
Construction	+47.9%	+395
Manufacturing (including Forest Products)	+6.6%	+37
Transportation and Public Utilities	-13.3%	-208
Wholesale Trade	+7.4%	+62
Retail Trade	+4.9%	+203
Finance, Insurance, and Real Estate	+28.1%	+324
Services*	+29.1% *	+1,490 *
Government	-0.2%	-10
Federal, Civilian	+2.9%	+17
Military	-40.3%	-169
State and Local	+4.1%	+142

*Estimated due to data disclosure issues in some years.

Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, Regional Economic Information System (REIS), 1969-2000, CD-ROM, May 2002.

tion, followed by finance, insurance, and real estate. Those declining at the greatest rate were mining and military. Increased employment in the retail trade, finance, insurance, and real estate, and services sectors accounted for half of the total job growth.

Job growth in Hill County was second highest of the five counties, with an increase of 716 jobs. The greatest percentage gains were made in agricultural services and mining. The largest total growth occurred in the services sector (506 jobs), which accounted for 70% of the total job growth. Military employment declined by over 50% (100 jobs) and manufacturing employment declined by one-third (57 jobs).

Phillips County had the greatest decline in employment of the five study area counties, losing almost 3% of its jobs (84). The greatest loss was in mining, which lost over 80% of its jobs (144 jobs). The greatest percentage gain was in the construction sector, where employment nearly doubled. The greatest absolute gain was in the services sector, with 228 new jobs.

Personal Income

Personal income is the total amount of income received and includes earnings, transfer payments, and dividends, interest, and rent. It represents the total amount of income to an individual.

Earnings represent the sum of three components of personal income: wage and salary disbursements, other labor income (includes employer contribution to pension and profit-sharing, health and life insurance, and other non-cash compensation), and proprietors' income. Earnings reflect the amount of income that is derived directly from work and work-related factors.

Personal income increased in the United States by almost 40% before adjusting for inflation between 1991 and 2000. To reflect the actual spending power of income, adjustments are made for inflation. After adjusting for inflation, personal income increased by over 20% in the U.S. Growth in personal income in Montana lagged behind the U.S., growing by about 10% before inflation during the period. After adjusting for inflation, personal income in Montana actually decreased by almost 4%, reflecting a decrease in the spending power of income.

After adjusting for inflation, personal income in the study area decreased by over 4%, which is greater than the decrease in the entire state. The greatest decline in the study area and the five counties was in farm proprietors' income, a significant source of personal income to the area. Income from wages and salaries and from non-farm proprietors' income had small increases, but not enough to compensate for the large reductions in farm income.

Income from transfer payments increased over 20% after adjusting for inflation, with the income maintenance component of this category increasing by nearly 47% (Table 3.19).

Table 3.19 Changes in Personal Income and Major Components of Personal Income, 1991 to 2000, Five-County Area, Montana	
Personal Income Component	Percent Change
Per Capita Personal Income	-4.6%
Wage and Salary Disbursements	+5.1%
Proprietors' Income	-54.6%
Non-Farm Proprietors' Income	+2.5%
Farm Proprietors' Income	-85.5%
Per Capita Transfer Payments	+21.5%
Per Capita Income Maintenance	+46.6%
Per Capita Retirement and Other	+20.1%
Per Capita Dividends, Interest, and Rent	+4.8%

Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, Regional Economic Information System (REIS), 1969-2000, CD-ROM, May 2002.

Chouteau County had the greatest decrease in inflation adjusted per capita income of the five counties. Fergus County had the largest increase in personal income of the five counties, despite a severe drop in farm proprietors' income.

Major Economic Sectors

What is the economy of Montana like? What are the sectors with the largest output? Which sectors employ the most people? Which ones have the largest payments of wages and salaries and proprietary income? Knowing the answers to these questions will provide some perspective on the differences between the state as a whole and the study area.

State of Montana

Historically, Montana has been noted for its mining and agriculture. Over time, Montana's economy has evolved into a modern diversified economy, as can be seen in Table 3.20. The leading sector in terms of output was the services sector, followed by the manufacturing sector. The services sector also provided the most jobs, followed by trade. Services also produced the most total personal income, followed by government. The highest paying jobs were in the mining sector, followed by transportation, communications, electric, gas and sanitary services.

Table 3.20
Industry Output, Employment, Income, and Income per Job,
by Standard Industrial Code (SIC) Division, State of Montana, 2000

<i>SIC Division</i>	<i>Output (Million \$)</i>	<i>Employment (Jobs)</i>	<i>Income (Million \$)</i>	<i>Income per Job (\$)</i>
Agriculture, Forestry, and Fishing	2,779.7	39,500	350.3	8,861
Mining	1,006.8	4,648	226.9	48,817
Construction	4,065.7	40,535	1,200.1	29,606
Manufacturing	7,475.2	29,053	1,009.0	34,729
Transportation, Communications, Electric, Gas and Sanitary Services	3,792.9	25,595	1,038.4	40,570
Trade	5,274.8	126,239	2,305.7	18,264
Finance, Insurance, and Real Estate	5,867.5	45,925	1,005.0	21,884
Services	7,897.0	161,002	3,718.4	23,095
Government and Other	4,073.8	93,185	3,090.8	33,168

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

What are the sectors with the largest output? Which sectors employ the most people? Which ones have the largest payments of wages and salaries and proprietary income? To answer these questions, we look at the economic data in a more disaggregated form.

Industries in the state economy were ranked by the size of their industrial output to help answer these questions. Petroleum refining, a manufacturing industry, has by far the greatest output in the state. This industry requires a large capital investment in plant and equipment and a significant portion of the value of output is paid to capital. It is not included in the top ranked industries for either employment or income. No other manufacturing industries are included in this or any other rankings. Ranching ranks third in output and fourth in employment, but is not highly ranked in income. As shown above in Table 3.20, income per job in agriculture is low.

Government is an important provider of jobs and income for the Montana economy. The greatest number of jobs is provided by public education, followed closely by eating and drinking establishments. Three of the four major government industries are included in the top 15 industries when ranked by number of jobs.

Fifteen industries had more than \$200 million in total employee compensation and proprietary income. Again, three of the four government industries ranked in the top five income producers, with the fourth government industry ranked 11th. Employees in these government industries earned over \$2.8 billion combined.

Study Area

As with the state, the study area has historically been identified with the agricultural and mining industries. Agriculture still dominates the economic base as measured by industry output, but mining has declined and has now dropped to last place by this measure (Table 3.21). The services division is now second in terms of output, followed by finance, insurance, and real estate.

Manufacturing is ranked next to last in terms of output. Most of the local manufacturing serves local markets. The prepared feeds and meat packing industries serve the ranching industry, newspapers and commercial printing serve households and small businesses, and sheet metal work serves a variety of local businesses.

The division providing the most jobs is services, followed by trade. Government provides the most income, followed by services. The highest average paying jobs are found in the transportation division, with railroads having significantly higher incomes than other industries. The lowest average paying jobs are in the agricultural division.

As we look at the economic data in a more disaggregated form for the study area we find that the two principal agricultural industries, ranching and food grains (primarily wheat) are dominant in terms of output and important in terms of jobs and income.

No manufacturing industries appear in any of the rankings, emphasizing the rural, agricultural character of the area.

Table 3.21
Industry Output, Employment, Income, and Income per Job,
by SIC Division, Five-County Area, Montana, 2000

<i>SIC Division</i>	<i>Output (Million \$)</i>	<i>Employment (Jobs)</i>	<i>Income (Million \$)</i>	<i>Income per Job (\$)</i>
Agriculture, Forestry, and Fishing	407.9	4,730	41.2	8,701
Mining	35.1	138	5.5	39,817
Construction	137.7	1,426	38.7	27,107
Manufacturing	94.4	647	17.1	26,472
Transportation, Communications, Electric, Gas and Sanitary Services	216.6	1,222	64.3	52,612
Trade	186.7	5,211	81.1	15,560
Finance, Insurance, and Real Estate	240.2	1,666	32.4	19,476
Services	278.5	6,492	122.8	18,917
Government and Other	173.3	4,762	137.3	28,836

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

The various levels of government provide important sources of employment and income to the study area. For Blaine and Chouteau Counties, natural gas and crude petroleum is also an important industry in terms of output and also is ranked tenth in income.

In Hill County, the railroad industry is the dominant part of the economic base, providing the most output and income and ranking fourth in jobs. Hospitals are also an important source of output, jobs, and income there.

As we look at the economic data in a more disaggregated form for the study area we find that the two principal agricultural industries, ranching and food grains (primarily wheat) are dominant in terms of output and important in terms of jobs and income. Table 3.22 shows those industries with more than \$30 million in output, Table 3.23 shows those industries with more than 500 jobs, and Table 3.24 shows those with income of over \$9 million.

There are no manufacturing industries ranked in any of the tables, emphasizing the rural, agricultural character of the area. The various levels of government provide important sources of employment and income to the study area.

Output Multipliers

Output multipliers measure the round-by-round effects of money coming into the study area. An example would be when the ranching sector is marketing cattle. When the cattle are exported from the study area money from the sale comes into the area. This is called the direct effect of selling cattle for export. The ranch sector also buys from and sells goods and services to other sectors in the local economy. This is called the indirect effect of the export. That is, these sectors, while not directly exporting cattle, are supplying the ranch sector with goods and services. Through these direct and indirect effects of the export, households receive income from wages, salaries, proprietary income, interest, rents, etc. Some of this household income is spent within the study area. This is called the induced effect of the export.

A multiplier is calculated by adding the direct, indirect, and induced effects together and dividing the sum by the direct effect. Multipliers typically are numbers like 1.5. This is interpreted as the sum of the direct effect being the 1 and the indirect and induced effect being the 0.5. What this means is that for every dollar of export from the sector, the multiplier produces an additional output in the total economy of the study area of 50 cents. Table 3.25 shows the multipliers for selected sectors in the study area economy.

Table 3.22 Industries Ranked by Total Industrial Output (Greater than \$30 Million), Five-County Area, Montana, 2000	
<i>Industry Group</i>	<i>Industry Output (Million \$)</i>
1. Ranch Fed Cattle Including Hay and Pasture	224.773
2. Food Grains	116.194
3. Railroads and Related Services	105.164
4. Banking	68.434
5. State and Local Government — Education	62.584
6. Hospitals	61.655
7. Wholesale Trade	56.076
8. Real Estate	54.257
9. New Residential Structures	49.051
10. State and Local Government — Non-Education	40.507
11. Eating and Drinking	38.294
12. Feed Grains	33.804
13. Federal Government — Non-Military	33.554
14. Natural Gas and Crude Petroleum	32.832
15. Communications, Except Radio and TV	30.674
16. Automotive Dealers and Service Stations	30.155

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

Table 3.23 Industries Ranked by Total Employment (More than 500 Jobs), Five-County Area, Montana, 2000	
<i>Industry</i>	<i>Employment (Jobs)</i>
1. Ranch Fed Cattle Including Hay and Pasture	2,460
2. State and Local Government — Education	2,094
3. State and Local Government — Non-Education	1,342
4. Food Grains	1,306
5. Eating and Drinking	1,293
6. Miscellaneous Retail	1,074
7. Hospitals	1,034
8. Wholesale Trade	901
9. Automotive Dealers and Service Stations	721
10. Federal Government — Non-Military	691
11. Accounting, Auditing and Bookkeeping	632
12. Real Estate	581
13. Railroads and Related Services	560
14. Food Stores	557
15. Maintenance and Repair Other Facilities	509

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

Table 3.24 Industries Ranked by Total Employee Compensation plus Proprietary Income (Greater than \$9 Million), Five-County Area, Montana, 2000	
<i>Industry</i>	<i>Employee Compensation plus Proprietary Income (Million \$)</i>
1. State and Local Government — Education	62.584
2. Railroads and Related Services	39.542
3. Hospitals	34.571
4. State and Local Government — Non-Education	31.401
5. Federal Government — Non-Military	28.296
6. Wholesale Trade	22.912
7. Ranch Fed Cattle Including Hay and Pasture	20.415
8. Maintenance and Repair Other Facilities	14.875
9. Automotive Dealers and Service Stations	13.455
10. Banking	13.212
11. Eating and Drinking	12.599
12. Miscellaneous Retail	11.653
13. Food Stores	10.883
14. Food Grains	9.707
15. Accounting, Auditing and Bookkeeping	9.513

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

Table 3.25 IMPLAN Output Multipliers for Selected Industries, Study Area, 2000	
<i>Sector</i>	<i>Output Multiplier</i>
Ranch Fed Cattle	1.9
Natural Gas & Crude Petroleum	1.3
General Merchandise Stores	1.3
Food Stores	1.3
Automotive Dealers & Service Stations	1.3
Eating & Drinking	1.4
Hotels & Lodging Places	1.4
Amusement & Recreational Services	1.4
Federal Government – Non-Military	1.4

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

The sectors displayed above were selected to represent those sectors most related to Monument outputs and uses. Ranching and natural gas production are the primary sectors associated with the Monument that produce products for export. General merchandise stores, food stores, automotive dealers and service stations, eating and drinking, hotels and lodging places, and amusement and recreational services are the sectors affected by the recreation and

tourism associated with the Monument. Federal government – non-military is the sector where the BLM purchases of goods and services and BLM payroll occurs and reflects money coming in from outside the study area and that has a multiplier effect.

Unemployment

The 2001 unemployment rate for the U.S. was 4.8% and for Montana it was 4.6%. The rate for the study area fell between these two rates at 4.7% (Table 3.26).

Taxes

Payments in Lieu of Taxes (PILT)

Public lands held by the federal government are not in the property tax base for the counties. As a result, counties forego tax revenue they would have received if the land had been privately owned. To reimburse the counties for these monies, the U.S. Congress passed Public Law 94-565 in 1976 that allows compensation for foregone property tax revenues to each county. This compensation, Payments in Lieu of Taxes (PILT), is the payment made by the federal government each fiscal year to each county to offset lost property tax revenues (BLM 2003c). Recent payments are shown in Table 3.27. The amounts shown in the table are the amounts authorized and appropriated by Congress and

Table 3.26 Unemployment Rates for the Five-County Area and for Blaine, Chouteau, Fergus, Hill, and Phillips Counties, Montana, 1990-2001						
<i>Year</i>	<i>Study Area</i>	<i>Blaine</i>	<i>Chouteau</i>	<i>Fergus</i>	<i>Hill</i>	<i>Phillips</i>
1990	5.3%	7.8%	2.6%	5.4%	5.4%	4.8%
1991	6.6%	8.8%	3.4%	7.5%	6.8%	4.9%
1992	6.2%	8.0%	2.7%	6.5%	6.6%	5.6%
1993	5.7%	8.8%	2.2%	5.7%	6.3%	3.9%
1994	4.9%	7.1%	3.0%	4.7%	5.3%	3.2%
1995	6.3%	9.8%	3.4%	6.2%	6.1%	6.2%
1996	5.8%	9.9%	2.6%	5.6%	4.8%	8.5%
1997	5.9%	10.2%	2.4%	5.9%	5.4%	6.8%
1998	6.5%	9.2%	3.2%	6.4%	6.2%	8.6%
1999	5.9%	8.3%	3.1%	5.3%	5.8%	7.9%
2000	5.2%	6.8%	3.1%	6.0%	5.1%	4.8%
2001	4.7%	5.6%	3.1%	5.8%	4.1%	4.4%

Source: U.S. Department of Labor, Bureau of Labor Statistics, www.stats.bls.gov/lau/home.htm.

Table 3.27 Annual PILT Payments by County, 2000 and 2003					
<i>Fiscal Year</i>	<i>BLM Acres</i>	<i>Total PILT Acres</i>	<i>PILT Payment</i>	<i>BLM PILT Payment</i>	<i>Payment Per Acre*</i>
Blaine County					
2000	452,650	453,464	\$287,161	\$286,646	\$0.63
2003	451,385	452,199	\$356,195	\$355,554	\$0.79
Chouteau County					
2000	111,357	157,932	\$118,073	\$83,253	\$0.75
2003	109,408	155,983	\$205,380	\$144,056	\$1.32
Fergus County					
2000	349,965	484,939	\$367,478	\$262,708	\$0.75
2003	345,371	489,533	\$637,201	\$453,811	\$1.31
Hill County					
2000	14,204	47,790	\$37,458	\$11,133	\$0.78
2003	14,132	47,718	\$64,506	\$19,104	\$1.35
Phillips County					
2000	1,088,007	1,387,265	\$187,897	\$147,364	\$0.14
2003	1,077,715	1,377,093	\$261,231	\$204,440	\$0.19
Five-County Area - Montana					
2000	2,061,183	2,535,984	\$995,067	\$791,104	\$0.38
2003	1,998,011	2,517,932	\$1,524,513	\$1,176,965	\$0.59

Source: BLM (2003d), Payments in Lieu of Taxes.

paid by the federal government each fiscal year. They are usually less than the payments based on the formulas.

The PILT payment per acre can vary between counties and between years in the same county for a number of reasons. The PILT Act provides two formulas for allocating PILT money to counties. The administrator calculates both formulas for each county, and the county receives a PILT payment based on the formula producing the higher amount. The number of acres of qualified federal lands is defined as the entitlement lands and can change from year to year due to land exchanges and purchases. Prior fiscal year funds that may be deducted from the PILT payment may cause variation. These include federal payments to local governments under programs other than PILT during the previous fiscal year including: Refuge Revenue Sharing Fund, National Forest Fund, the Taylor Grazing Act, the Mineral Leasing Act for acquired lands, and the Federal Power Act. The governor of each state must report the amount of these payments each year to BLM so they may be deducted from the PILT payment.

Gas Tax Roads

A subset of the county rural roads is the “gas tax road,” a public, BLM, or county road with unrestricted access that receives a portion of the county fuel tax revenues. If the number of miles of gas tax roads increase/decrease, the tax revenue will increase/decrease proportionately. Since access to BLM portions of gas tax roads has the potential to change with different management options considered in plan development, the miles of gas tax roads in a county could change between plan alternatives. Table 3.28 shows the amount of money allotted for gas tax roads by county for Fiscal Year (FY) 2003.

County Property Tax Revenues

The role of the federal government in providing PILT and in revenue sharing may be better understood with informa-

tion about county revenues from other sources. Table 3.29 presents the amount of money the counties in the study area received from property taxes, a major source of county revenue.

For the study area, money received from the federal government represented about 2% of the revenue obtained from property taxes in 2000.

Relationship of BLM Activities to the Study Area Economy

The economy of the study area has many links to outputs and uses from the Monument. Ranching is a very important part of the study area economy. The Monument is currently a source of natural gas production with the potential for expansion of this production. Recreation activities, particularly on the wild and scenic sections of the Missouri River, are important sources of revenue for local businesses. Hunting and fishing in the Monument are also important to the local economy. The BLM road system in the Monument provides connectivity to other transportation corridors in the area.

As discussed above, the primary economic base in the area is ranching. The production of cattle in the region typically involves the utilization of both private and public resources. Grazing of cattle on public range is an important component of the ranching industry. The forage needs of the industry are met with a balance of public grazing lands, private grazing, and hay production, supplemented with grain. Current production reflects the current balance among these sources of supply. Changes in the availability of any of the components of nutrient requirements would require adjustments in the other components. If the supply of nutrients from the other components is relatively fixed, either economically or physically, then adjustments in herd size and production will occur.

Table 3.28 Gas Tax Road Revenues by County, FY 2003					
County	Total Gas Tax Revenues	Total Mileage	Dollars/Mile	Gas Tax Road Miles	Gas Tax Road Revenues
Blaine ^{1/}	\$128,938	1,467,927	\$11.38	1,470	\$16,736
Chouteau ^{2/}	\$144,108	2,090,564	\$14.51	2,400	\$34,817
Fergus ^{3/}	\$136,462	1,578,684	\$11.57	1,578	\$18,255
Hill ^{4/}	\$143,517	1,788,120	\$12.46	1,779	\$22,165
Phillips	\$123,165	1,511,846	\$12.27	N/A	N/A

^{1/}Gas Tax Road Miles—Personal Communication with Don Swenson, Blaine County Commissioner, November 26, 2003.
^{2/}Gas Tax Road Miles—Personal Communication with Harvey Worrall, Chouteau County Commissioner, December 1, 2003.
^{3/}Gas Tax Road Miles—Personal Communication with Fergus County Treasurer, Dolores Sramek, November 28, 2003.
^{4/}Gas Tax Road Miles—Personal Communication with Hill County Road Supervisor, Jerry Otto, December 4, 2003.

Table 3.29 Property Taxes Levied for Tax Year 2000 for Counties in the Study Area	
<i>County</i>	<i>Grand Total of All Taxes for All Purposes (Million \$)</i>
Blaine	\$5.686
Chouteau	\$8.908
Fergus	\$9.611
Hill	\$13.979
Phillips	\$6.574
Total	\$44.757

Source: Biennial Report of the Montana Department of Revenue, July 1, 1998, to June 30, 2000.

Grazing Fee Receipts

In the early days of ranching in the study area, federal grazing land was considered "free range." In 1934, with the passage of the Taylor Grazing Act, the availability of free range was ended. The Act contained provisions that permitted the collection of fees for grazing livestock on federal lands.

Table 3.30 shows the distribution of grazing revenues by county. The values reflect averages from various sources and time periods. As such, they reflect the relative importance of revenues from grazing fees to the counties.

Table 3.30 Distribution of Grazing Fee Revenues by County	
<i>County</i>	<i>Distribution of Grazing Fee Revenues</i>
Blaine	\$14,700
Chouteau	\$9,400
Fergus	\$14,700
Hill	\$1,100
Phillips	\$42,000

Source: Wendy Favinger, Bureau of Land Management, Billings, Montana.

Special Recreation Permit Fees

The Bureau of Land Management issues Special Recreation Permits for activities, events, and groups that may cause substantial resource damage or if public health/safety might be affected, including: commercial uses, competitions, organized group activities, or social gatherings of reunions, religious groups, Boy/Girl Scout camps, etc.

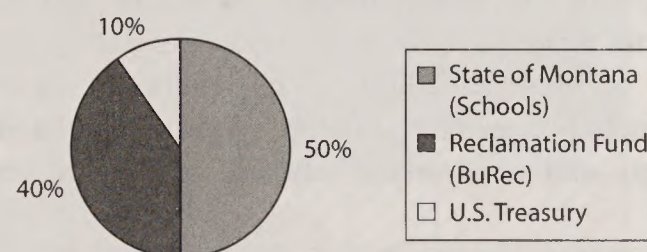
In May 2000, the BLM Lewistown Field Office issued a moratorium on new annual Special Recreation Permits for commercially-guided recreation trips on all BLM lands and waters within the Upper Missouri National Wild and Scenic River from Fort Benton downstream 149 miles to James Kipp Recreation Area.

Federal Mineral Revenue Disbursements

In addition to PILT payments, the federal government makes payments from receipts from mineral leases and development. Mineral revenues are collected from two types of lands administered by the BLM: public domain lands and Bankhead-Jones lands.

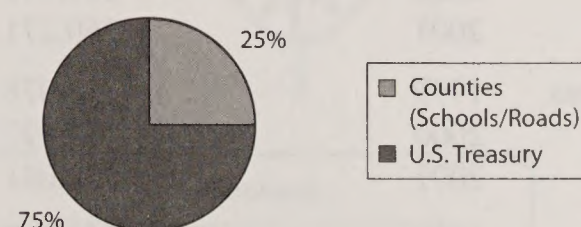
Mineral revenues on public domain lands are distributed as follows: the state receives 50%; the Reclamation Fund (managed by the Bureau of Reclamation) receives 40%; and the remaining 10% goes to the General Fund in the Department of the Treasury. The 50% distributed to the State of Montana is sent directly to the Office of Public Instruction for public school use in each county. See Figure 3.10.

Figure 3.10
Distribution of Federal Mineral Revenues
from Public Domain Lands



One-quarter of the mineral revenues from the use of Bankhead-Jones lands are distributed to the counties with Bankhead-Jones lands, with the requirement that counties must use this money for schools or roads or both, and the remaining 75% goes to the federal treasury. See Figure 3.11.

Figure 3.11
Distribution of Federal Mineral Revenues from
Bankhead-Jones Lands



While production of natural gas from the Monument is currently not a large component of the area economy, current production does exist and there is potential for new production. The cost of production of natural gas does not involve intensive local labor inputs. The output is sold primarily outside the study area and the revenues of gas production are paid largely to firms outside the area. Royalties and tax revenues are a source of revenue to all levels of government.

Market conditions for natural gas are an important factor in production and exploration decisions by producers. No detailed information was available on the amount of revenue local entities receive from these sources. However, data is available and presented in Table 3.31 showing the amount of natural gas produced in study area counties, the royalty value paid to the federal government, and the amount of the royalty disbursed to the state.

Travel and Tourism

Travel and tourism is a major industry that is not included in the SIC system. Travel and tourism is commonly called an “industry,” but it is not defined as such in economic statistics. Rather, travel and tourism spending is distributed across many sectors. Measuring the economic importance of tourism requires using indirect methods. Typically this is done by identifying the patterns of expenditures by travelers and tourists, estimating how many visited an area, and multiplying the expenditure patterns by the number of visits to get an estimate of the direct effect on industries where the expenditures are made.

This method was used by the University of Montana Travel Research Program to estimate the economic importance of non-resident travel in Montana. Their study estimated that about 6% of total employment in Montana is directly and indirectly related to non-resident travel and tourism (University of Montana 2004). While there are significant differences between the structure of the regional and state economy and it is very likely that travel and tourism

patterns are different, this estimate, related to the study area, may provide some insight into the size of the tourism industry in the study area. For the five-county area, 6% of total employment would represent about 1,480 jobs.

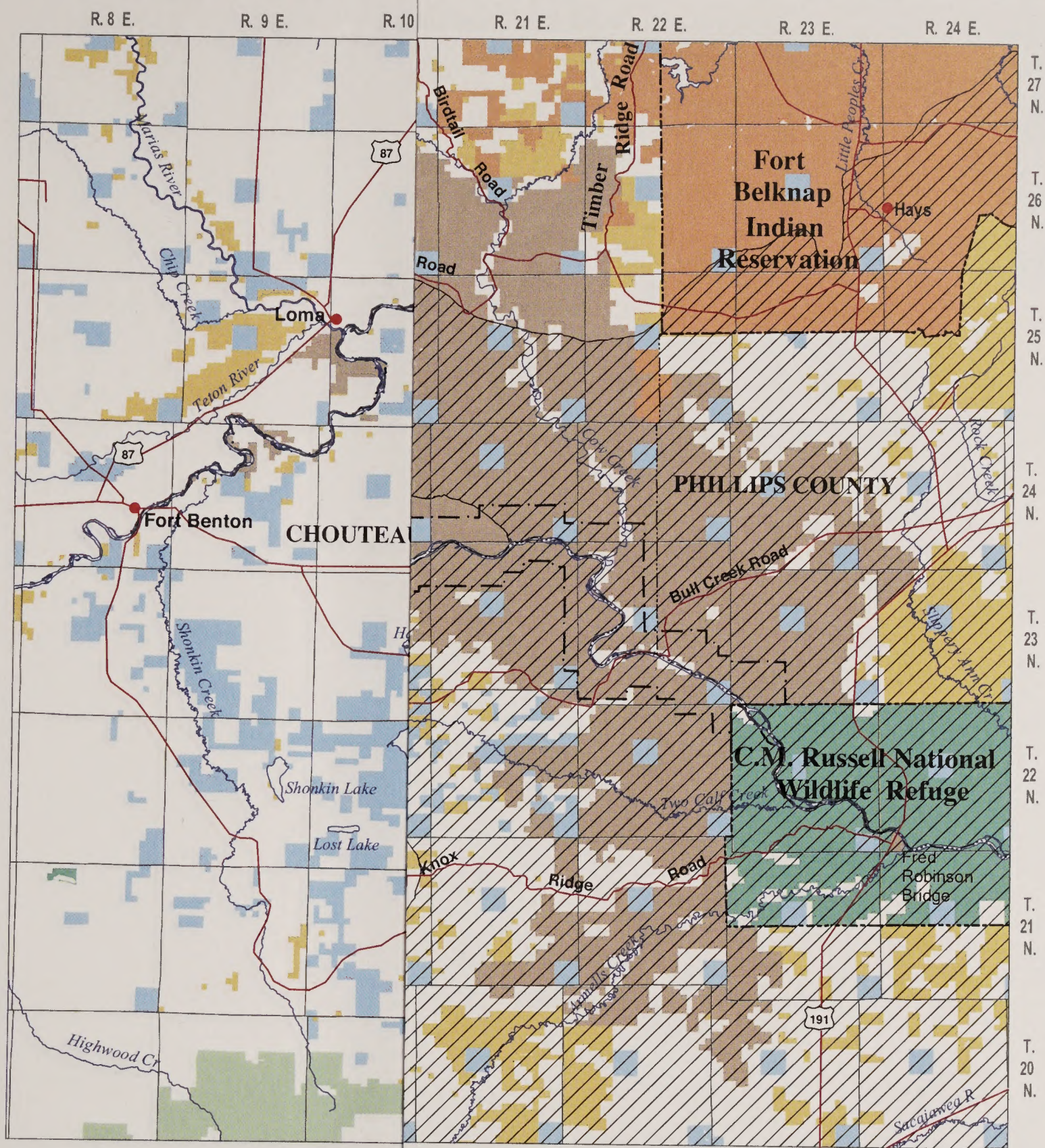
Tourism is a growing source of revenue for local businesses located near recreation areas attractive to tourists. The Monument is one such attraction. Currently, a large supply of recreational experiences is available to tourists over a wide area. However, unique recreational opportunities, such as floating the wild and scenic segments of the Missouri River, are more limited and in some cases so limited that restrictions are applied to the number of people that can use them at one time. This is the potentially emerging situation on the river in the Monument. Recreation related to these activities currently supports significant local business income. Of the 27 BLM authorized outfitting and vending services, 14 are headquartered in the study area, 24 are headquartered in the state, and three are out of state. Revenues generated by outfitted trips are important to local businesses.

Federal Government Expenditures

As discussed above, the federal government – non-military sector of the economy is an important source of jobs and household income in the counties of the study area. BLM employment is included in this sector. Changes in the management of the Monument that affect budgets may affect employment and income in this sector.

Table 3.31 Federal Natural Gas Revenue Disbursements for Study Area Counties, 1999-2001				
County and Year		Sales Volume (Mcf)	Royalty Value (\$1,000s)	Disbursement to State (\$1,000s)
Blaine	1999	2,005,514	\$240.7	\$120.3
	2000	1,559,733	\$460.7	\$230.4
	2001	2,192,260	\$897.2	\$448.6
Chouteau	1999	382,451	\$23.3	\$11.7
	2000	181,148	\$44.6	\$22.3
	2001	260,271	\$125.5	\$62.7
Fergus	1999	35,078	\$4.4	\$2.2
	2000	31,597	\$4.2	\$2.1
	2001	33,081	\$12.5	\$6.2
Hill	1999	353,717	\$74.5	\$37.3
	2000	340,508	\$91.5	\$46.0
	2001	341,753	\$178.2	\$89.1
Phillips	1999	6,826,220	\$2,164.8	\$1,082.4
	2000	7,527,662	\$2,411.5	\$1,205.8
	2001	9,431,769	\$4,594.0	\$2,297.1

Source: Minerals Management Service, 1999-2001, Federal Mineral Revenue Disbursements to States, Identified by County of Origin, Washington, D.C. Website www.mrm.mms.gov/stats, October 6, 2003.



Legend

Upper Missouri National Wild

Elk Distribution

Surface Ownership

National Monument (BLM)

Other BLM

US Forest Service

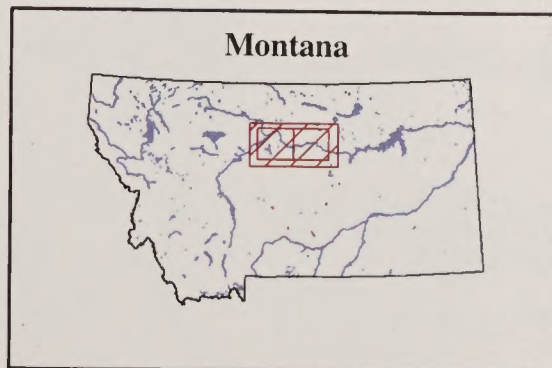
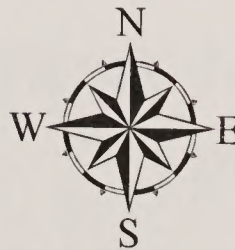
Indian or Reservation

C.M. Russel National Wildlife

State

Private

P/EIS



Map E

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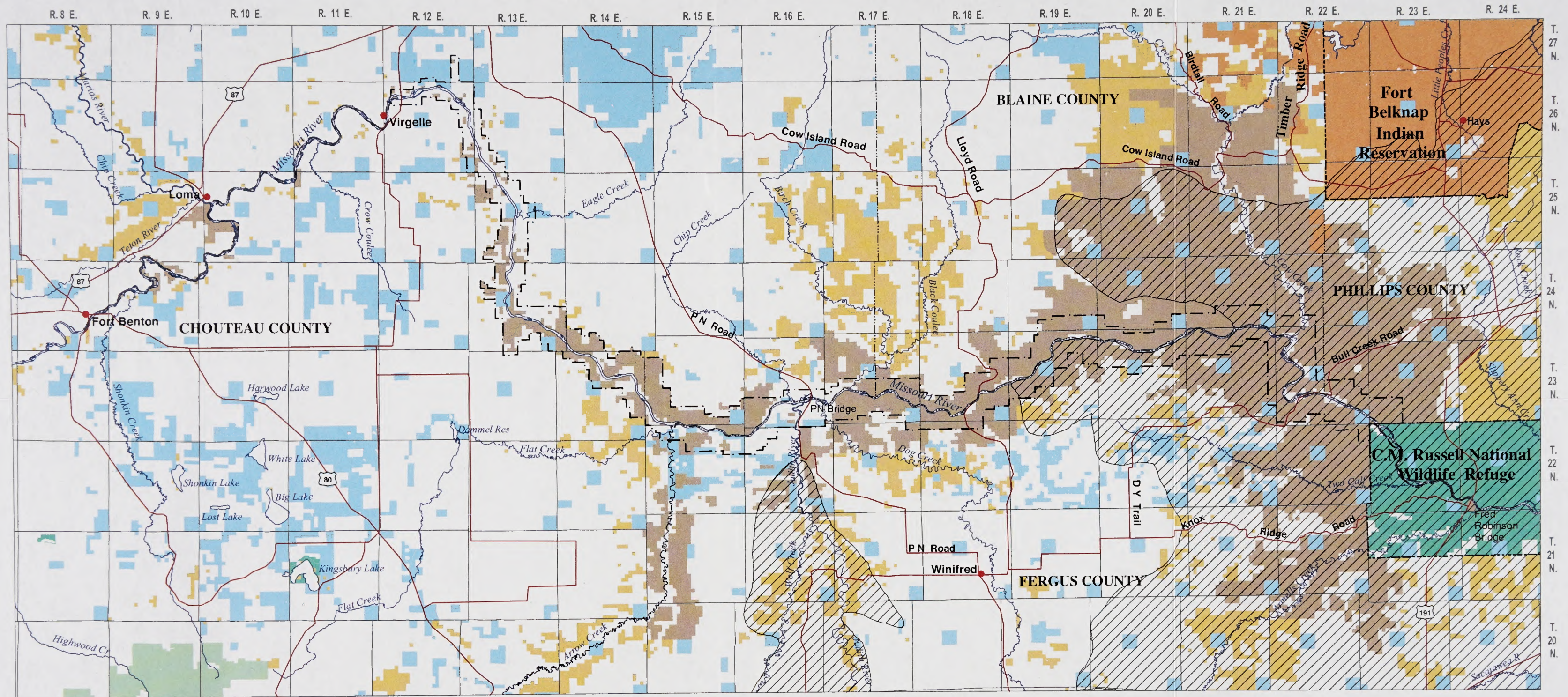
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Source: Minerals Management Service, 1999-2001, Federal Mineral Revenue Disbursements to States, Identified by County of Origin, Washington, D.C. Website www.mrm.mms.gov/stats, October 6, 2003.



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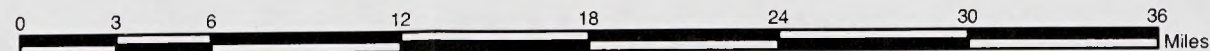
Upper Missouri National Wild & Scenic River Bndy

Elk Distribution

Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russel National Wildlife Refuge
- State
- Private

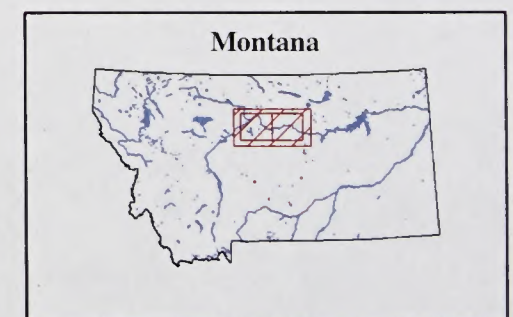
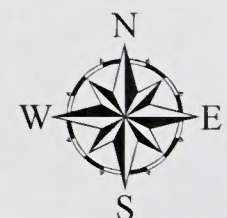
Upper Missouri River Breaks National Monument Draft RMP/EIS Elk Distribution



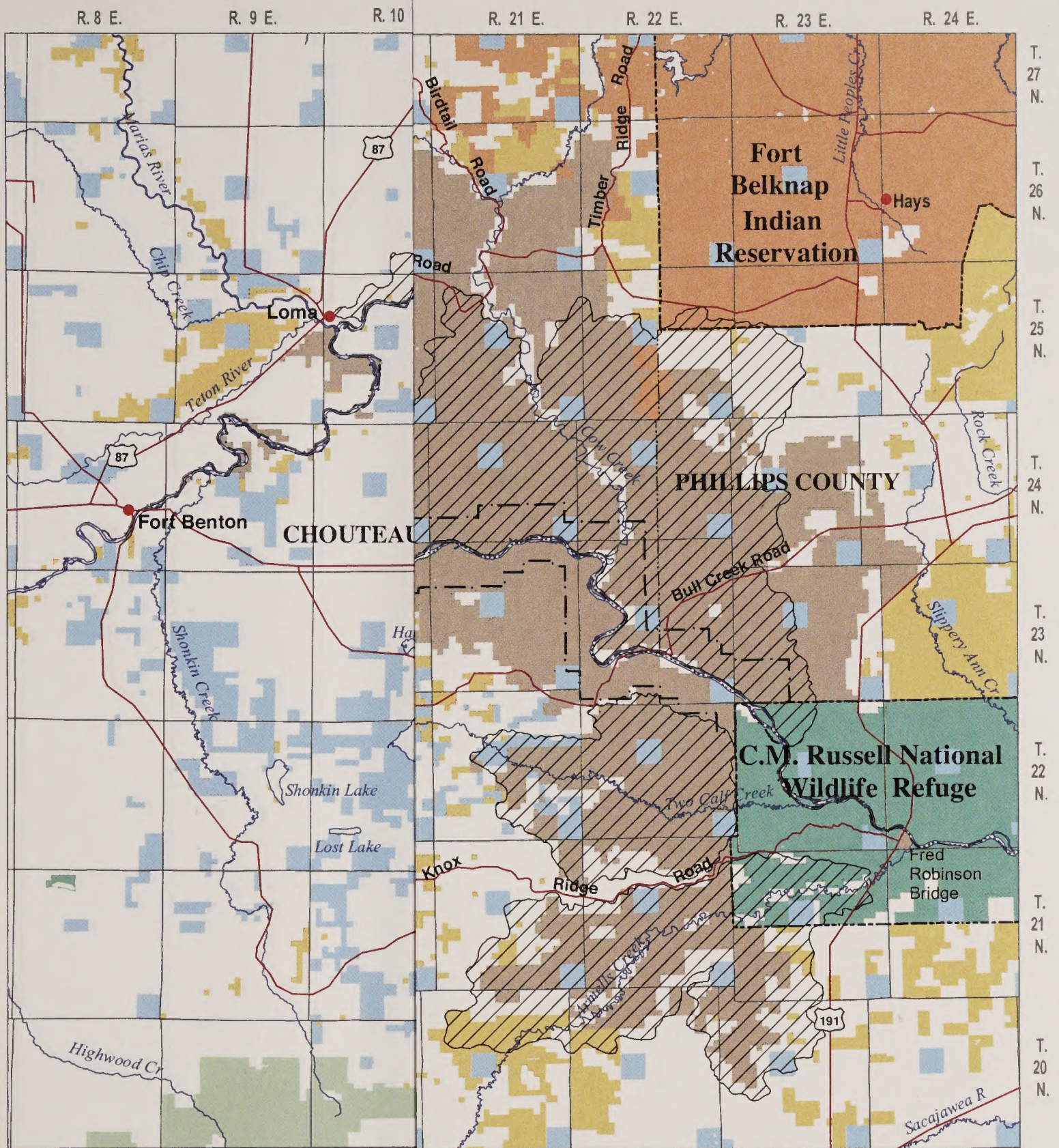
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Map E



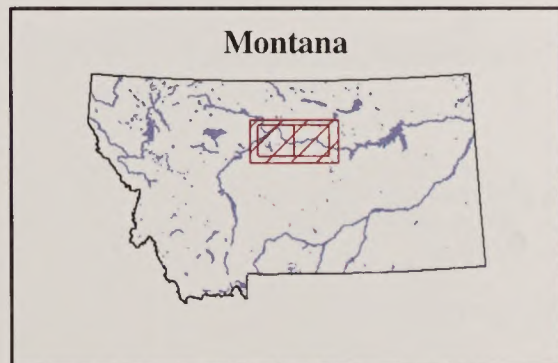
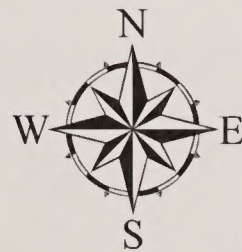
Legend

- Upper Missouri National Wildlife Refuge
- Deer and Elk Winter Range

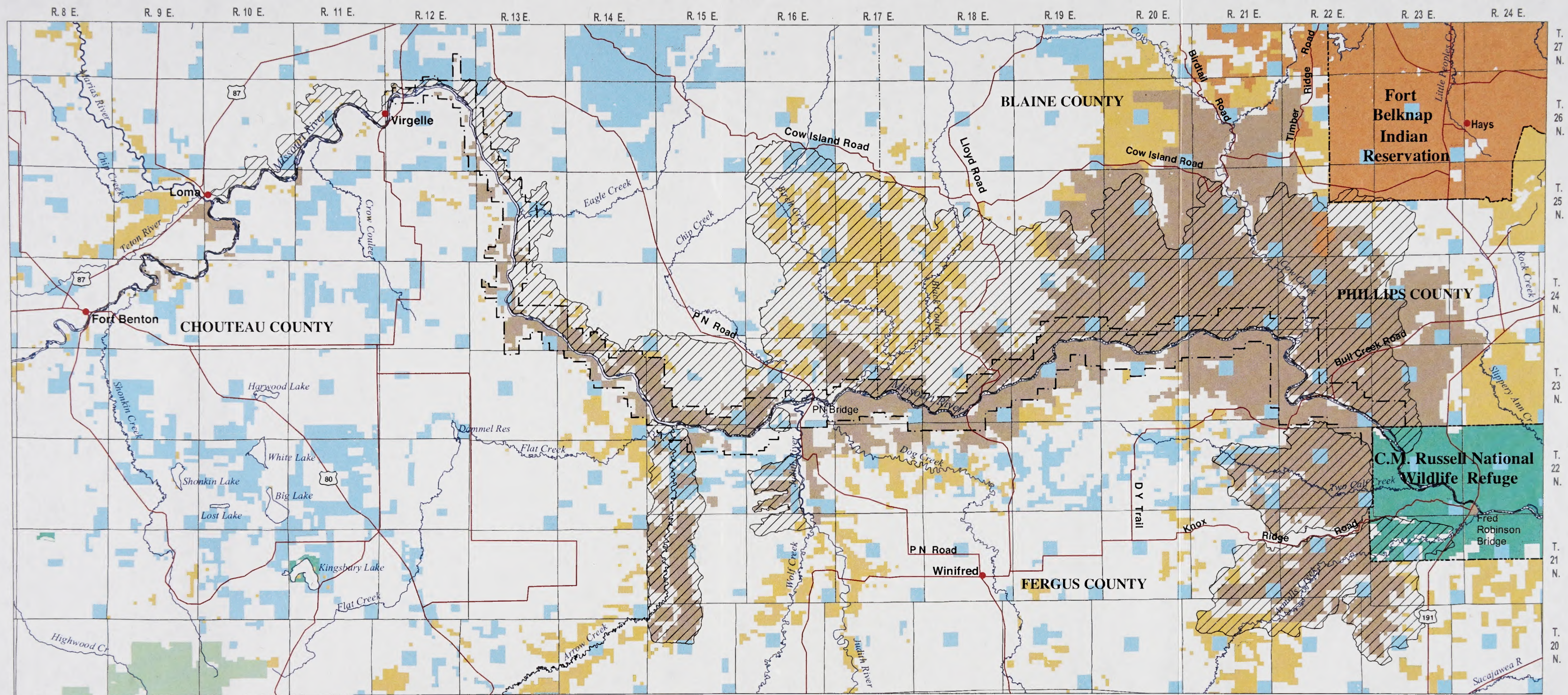
Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russell National Wildlife Refuge
- State
- Private

P/EIS



Map F



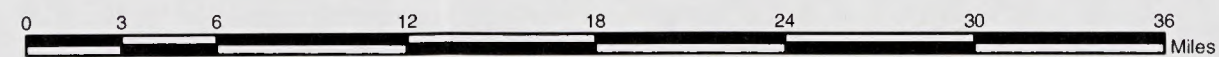
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Upper Missouri National Wild & Scenic River Bndy

Deer and Elk Winter Range

Surface Ownership

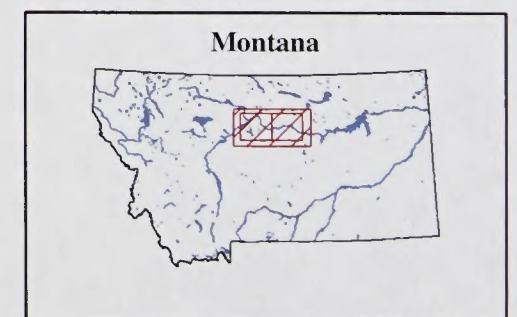
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- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russel National Wildlife Refuge
- State
- Private

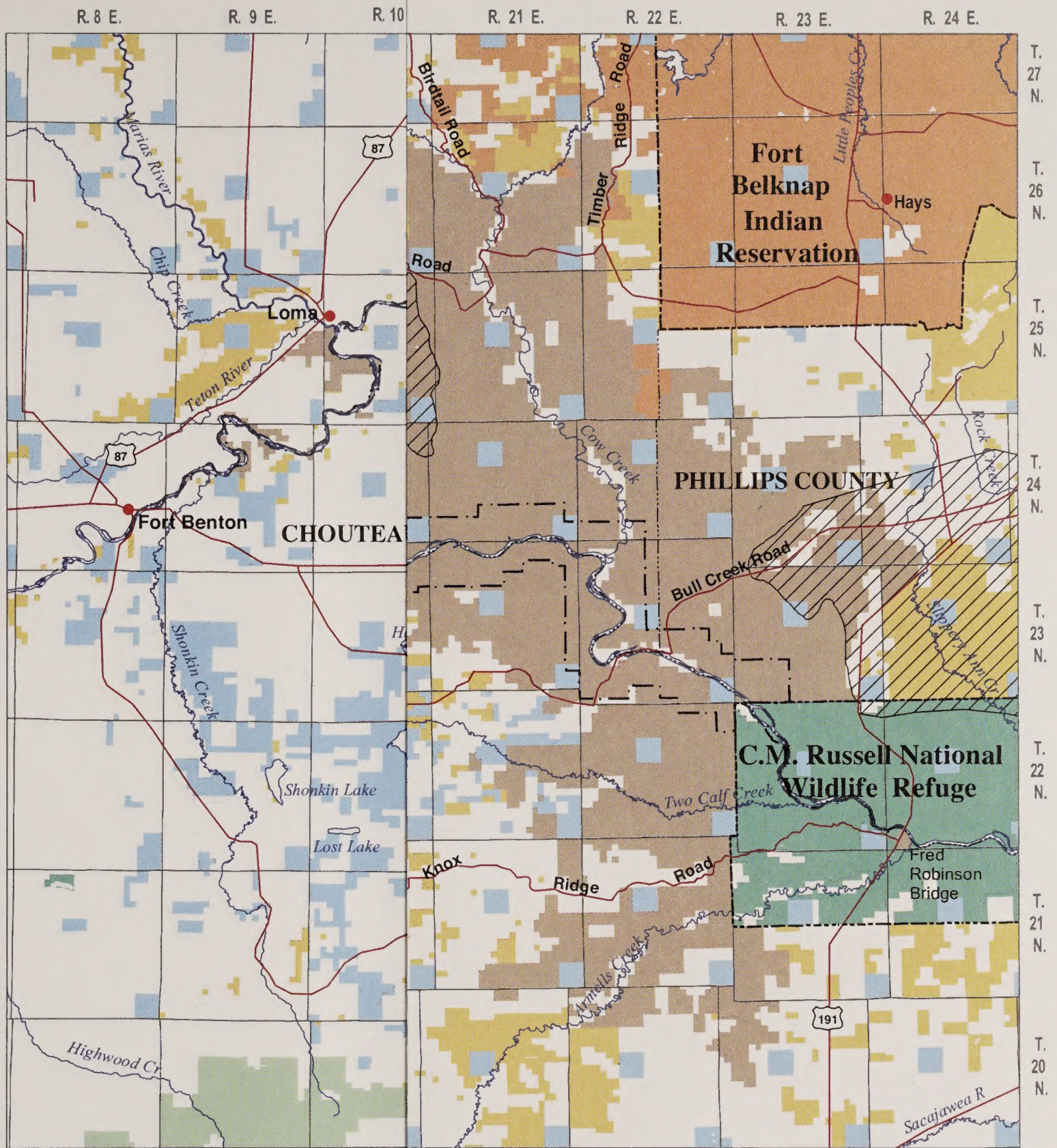


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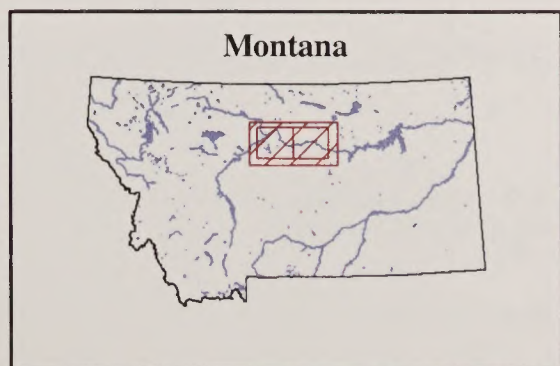
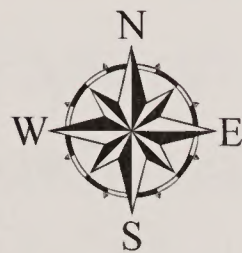
Legend

- Upper Missouri National Wild &
- Antelope Crucial Winter Range

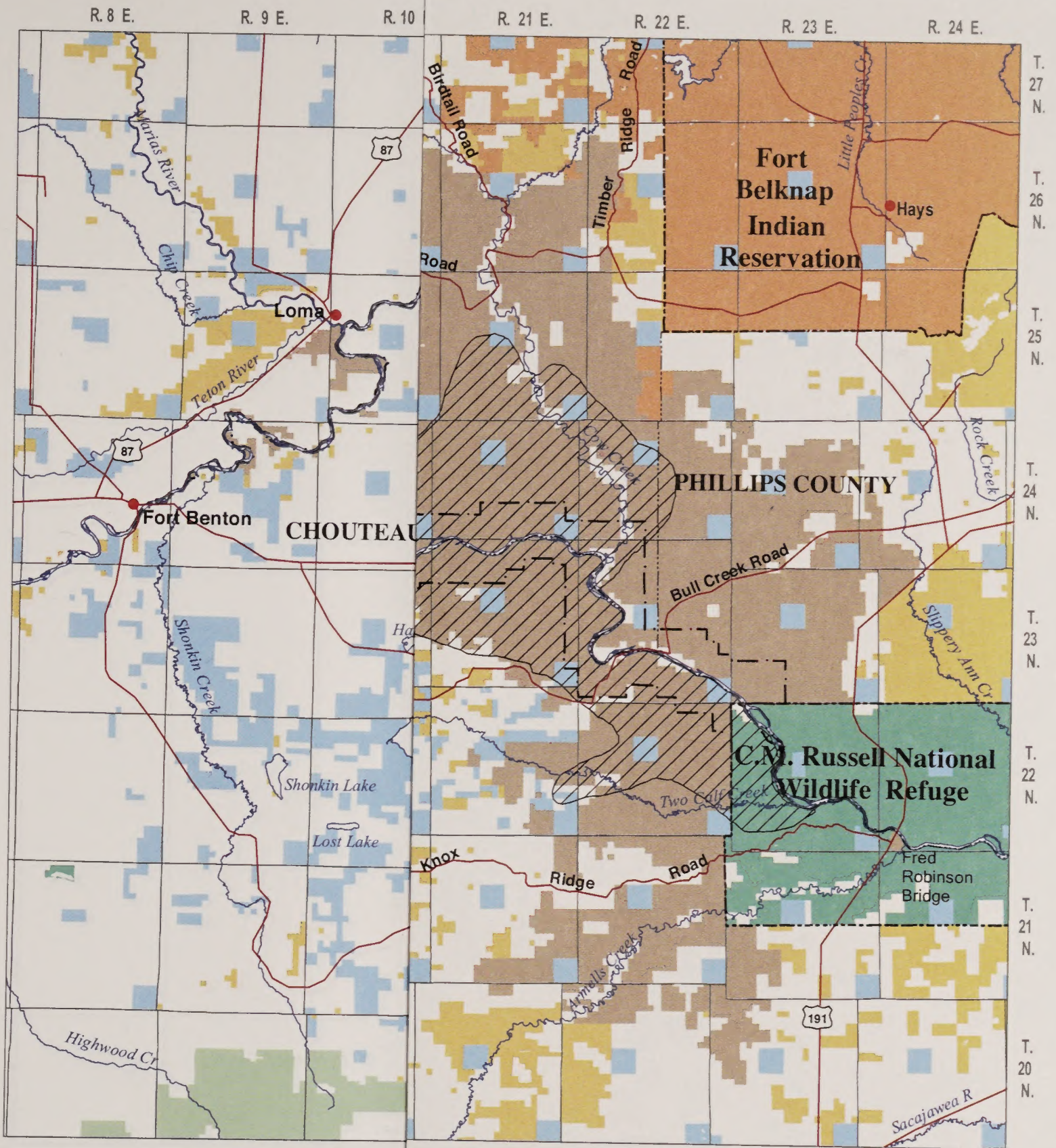
Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russel National Wildlife F
- State
- Private

P/EIS



Map G



Legend

Upper Missouri National Wild

Bighorn Sheep Distribution

Surface Ownership

National Monument (BLM)

Other BLM

US Forest Service

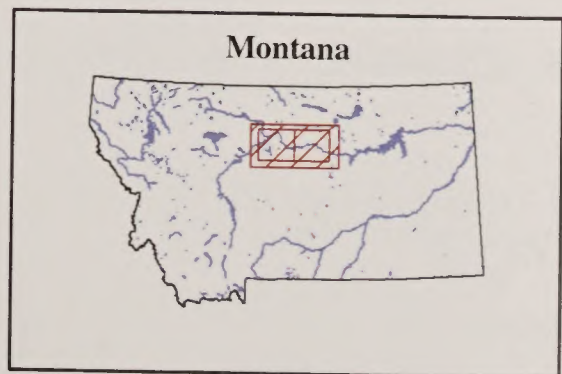
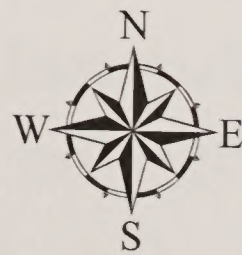
Indian or Reservation

C.M. Russel National Wildlife

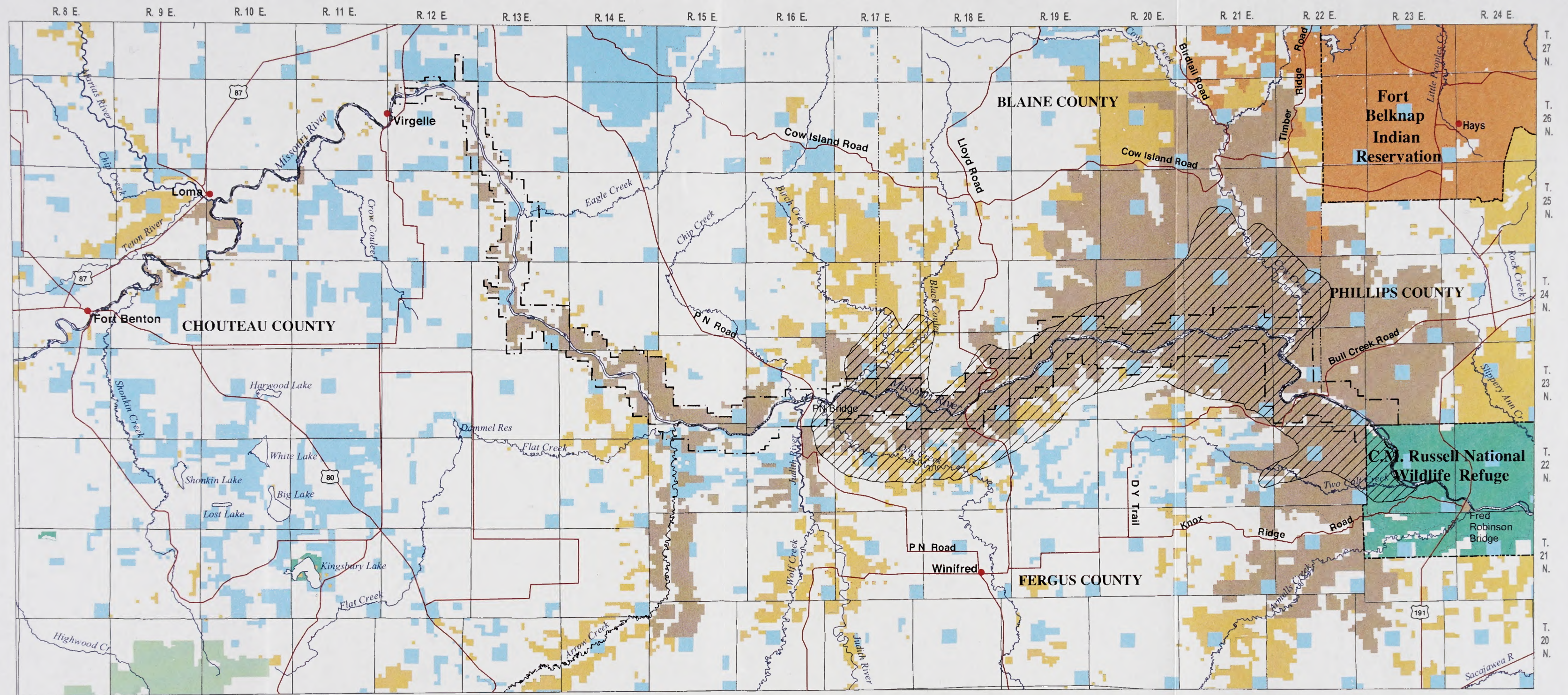
State

Private

P/EIS



Map H



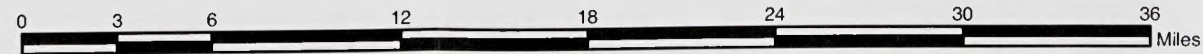
Legend

- Upper Missouri National Wild & Scenic River Bndy
- Bighorn Sheep Distribution

Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russel National Wildlife Refuge
- State
- Private

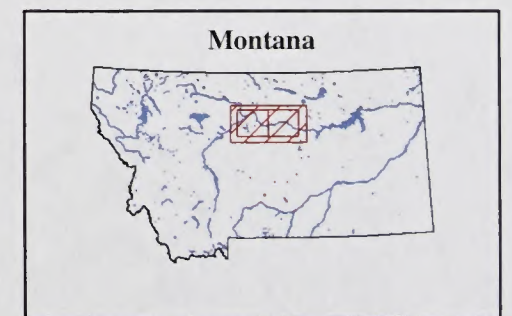
Upper Missouri River Breaks National Monument Draft RMP/EIS Bighorn Sheep Distribution

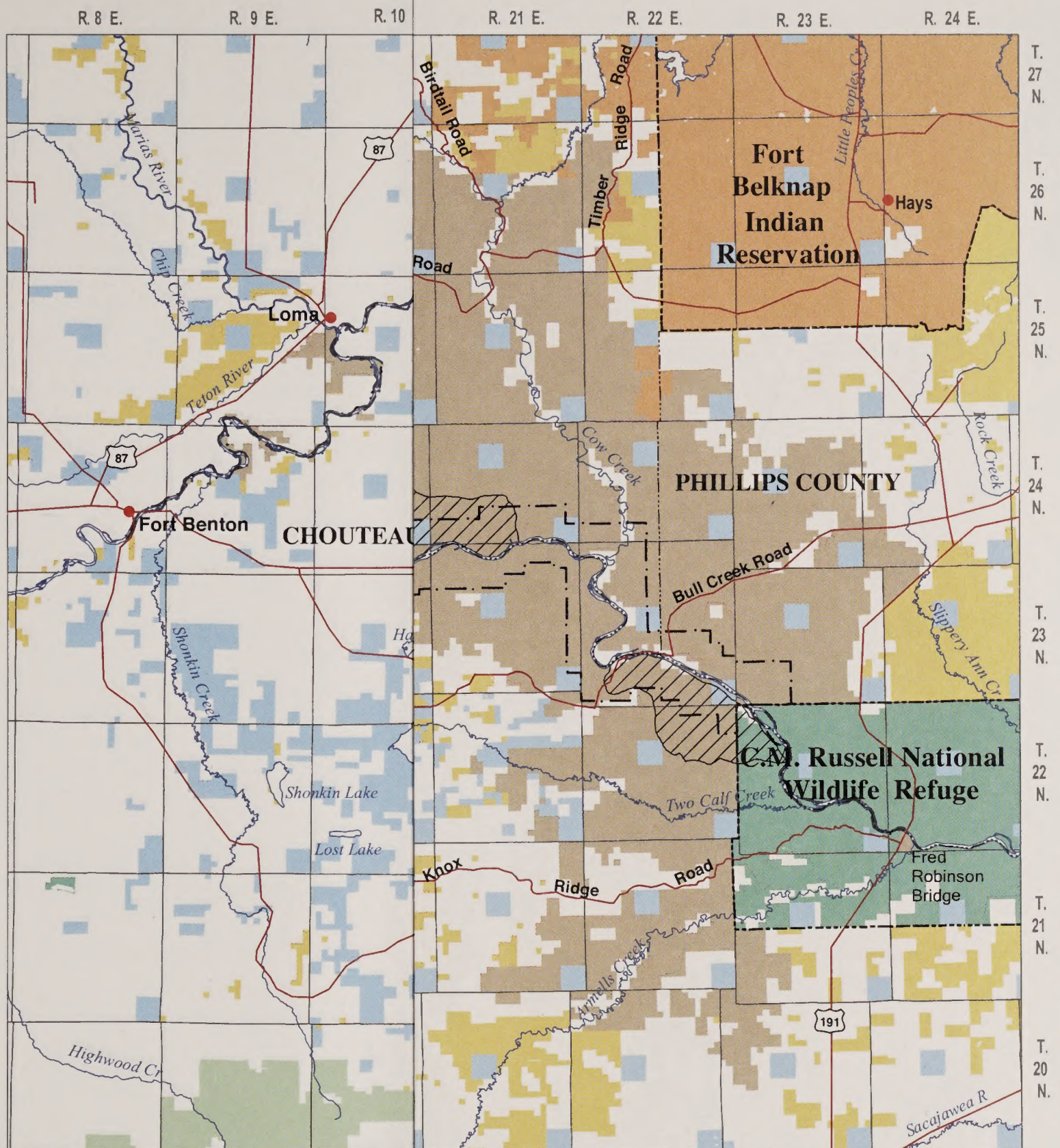


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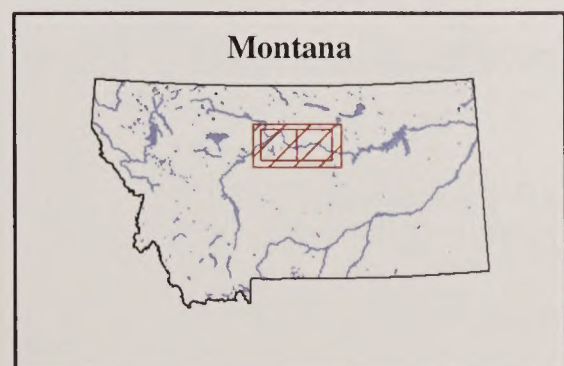
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- Upper Missouri National Wildlife Refuge
- Bighorn Sheep Lambing Area

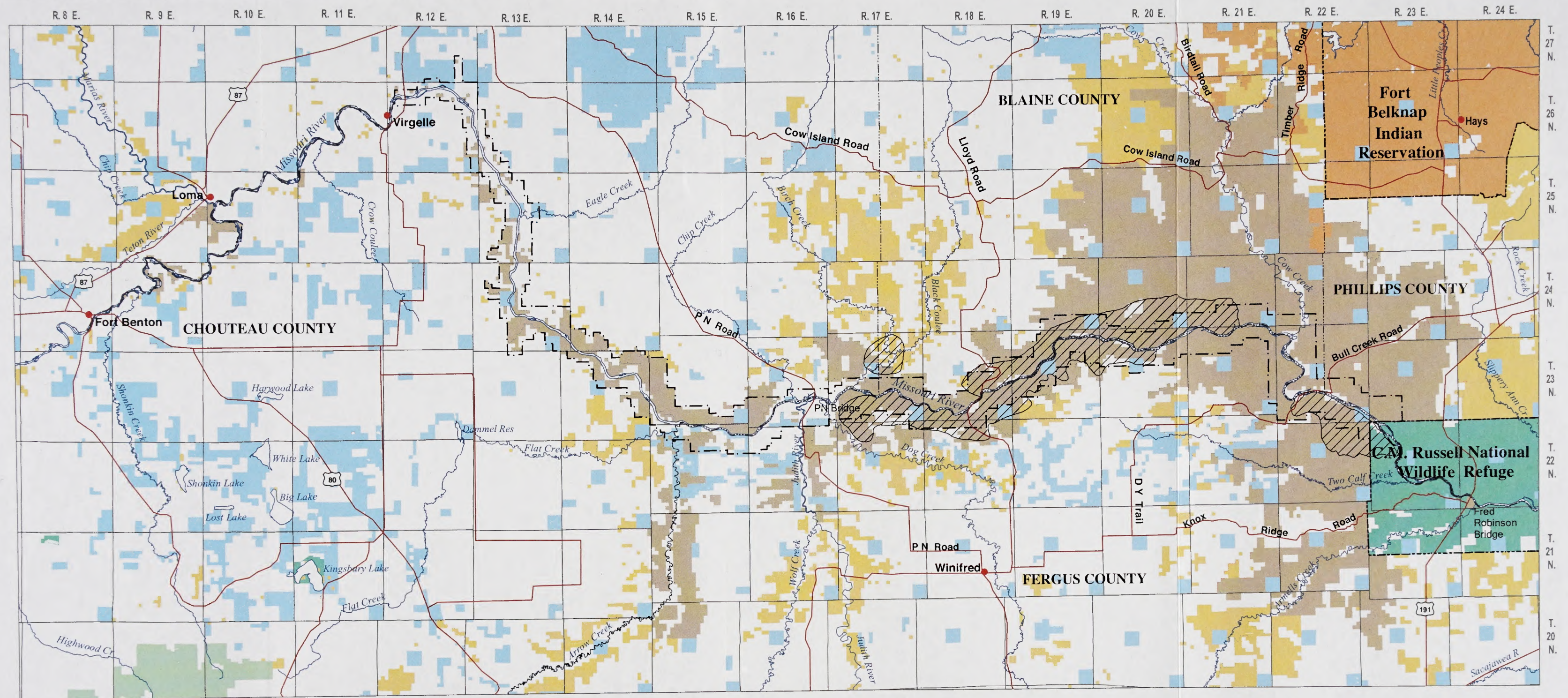
Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russell National Wildlife Refuge
- State
- Private

P/EIS



Map I



Legend

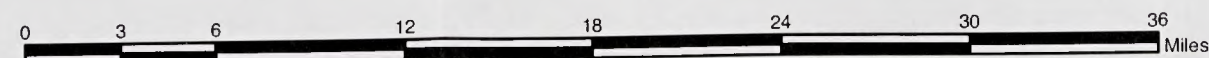
Upper Missouri National Wild & Scenic River Bndy

Bighorn Sheep Lambing Areas

Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russell National Wildlife Refuge
- State
- Private

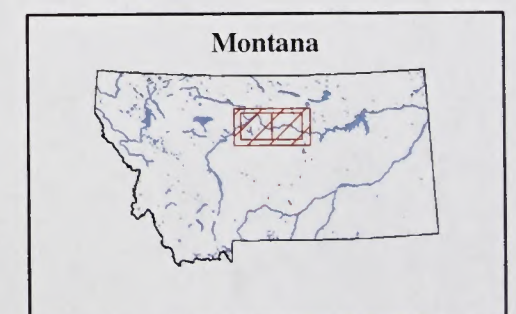
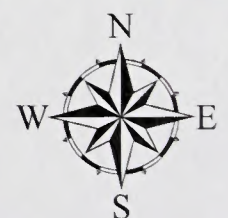
Upper Missouri River Breaks National Monument Draft RMP/EIS Bighorn Sheep Lambing Areas

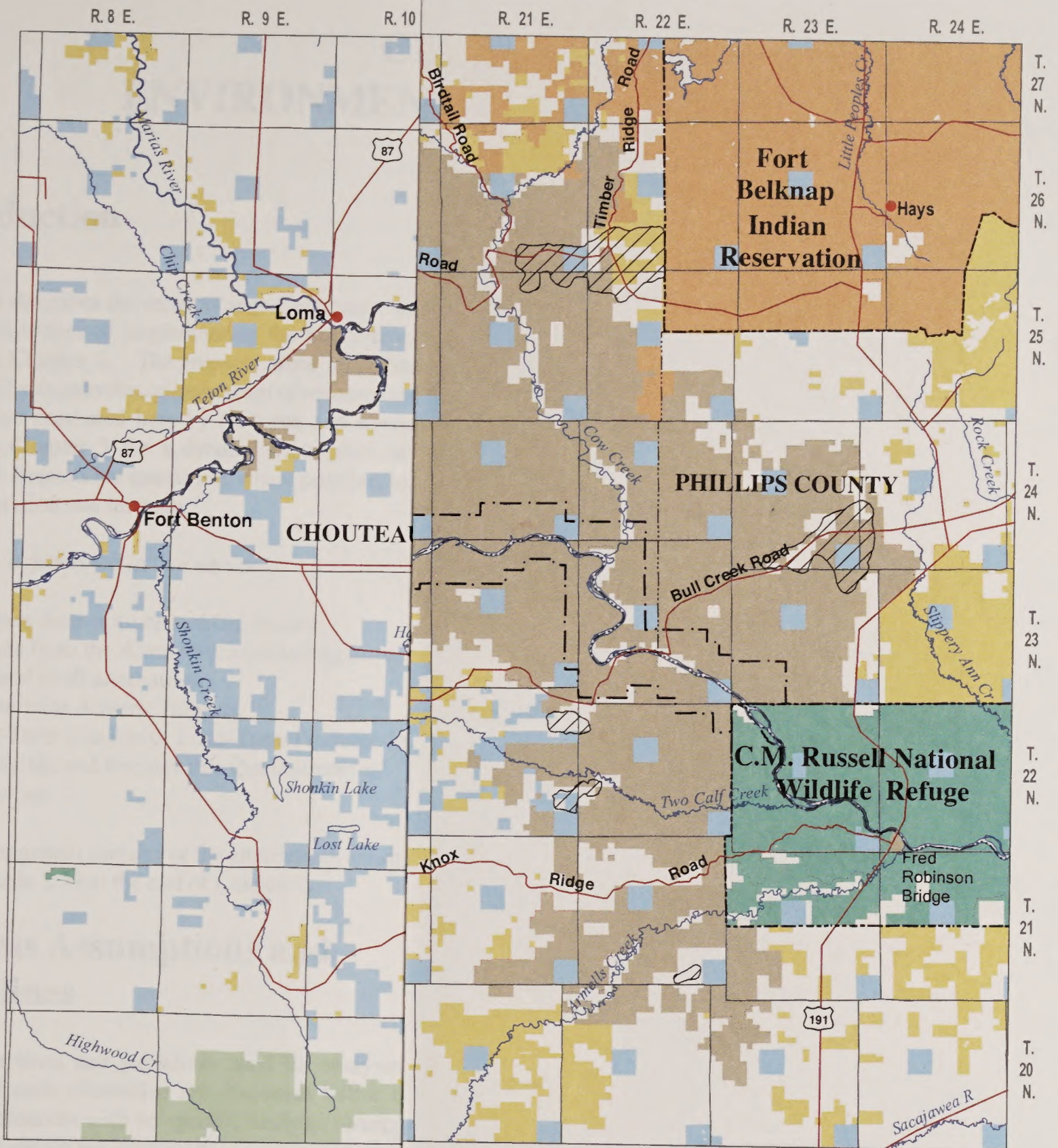


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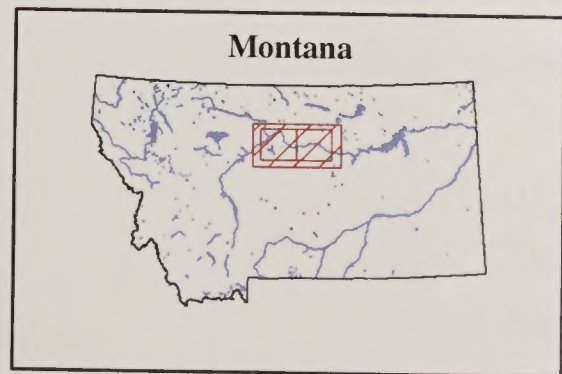
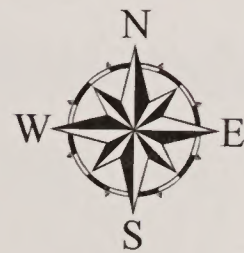
Legend

- Upper Missouri National Wildlife Refuge
- Greater Sage-Grouse Critical Habitat

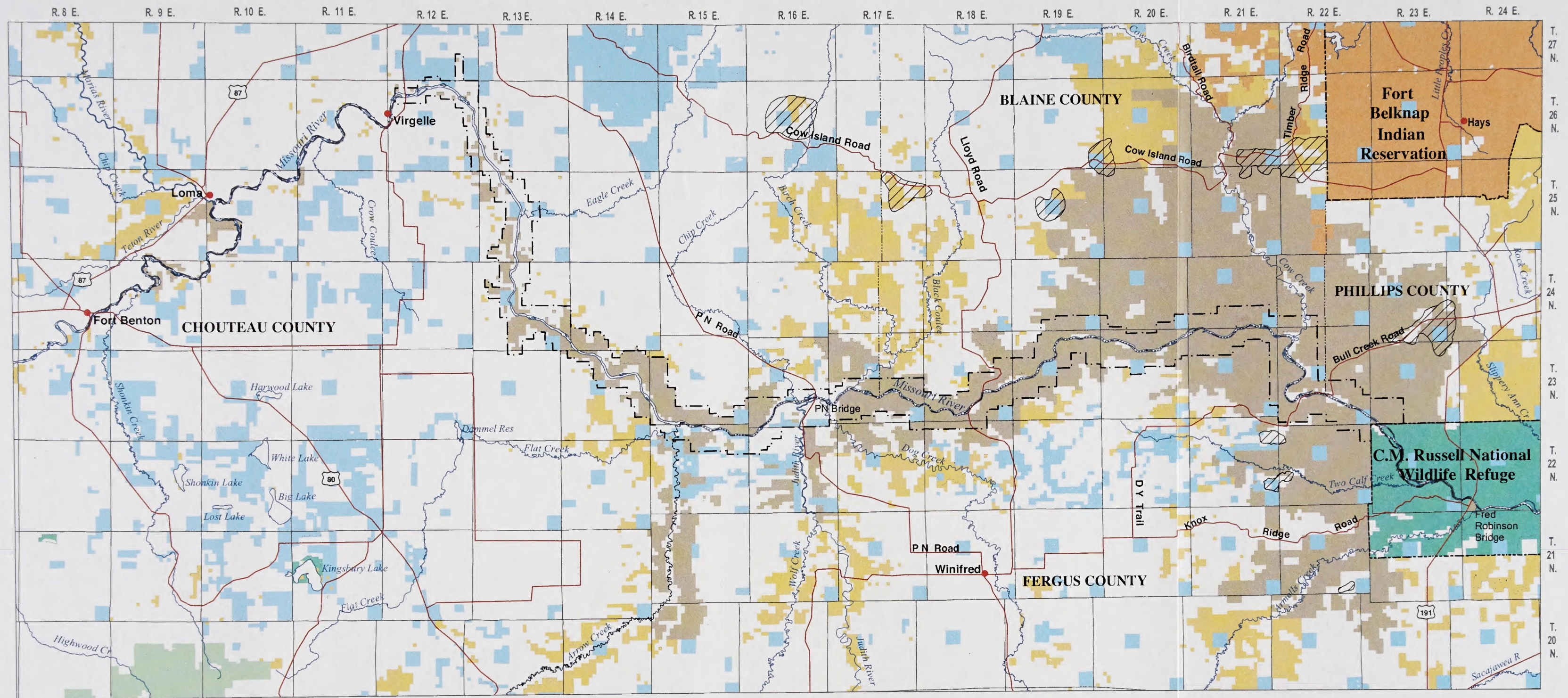
Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russell National Wildlife Refuge
- State
- Private

P/EIS



Map J



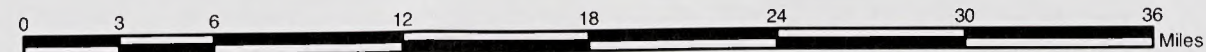
Legend

- Upper Missouri National Wild & Scenic River Bndy
- Greater Sage-Grouse Crucial Winter Habitat

Surface Ownership

- National Monument (BLM)
- Other BLM
- US Forest Service
- Indian or Reservation
- C.M. Russel National Wildlife Refuge
- State
- Private

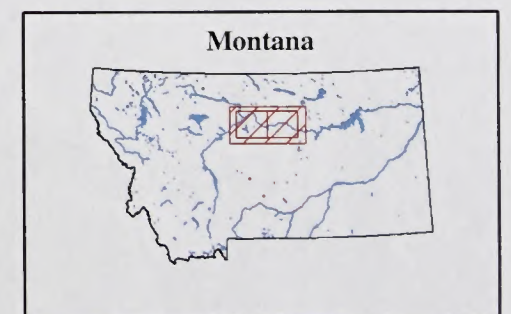
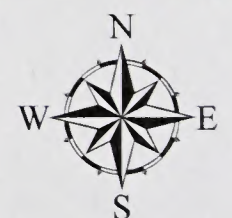
Upper Missouri River Breaks National Monument Draft RMP/EIS Greater Sage-Grouse Crucial Winter Habitat



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CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Introduction

Chapter 4 describes the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2. The impacts were identified and evaluated by an interdisciplinary team of resource specialists and are presented here by resource and alternative. (Refer to Chapter 3 for a detailed description of each resource.) Impacts are quantified, where possible, in magnitude, duration and intensity.

Chapter 4 is presented in five sections:

- Analysis Assumptions and Guidelines
- Impacts from the Alternatives (including impacts common to all alternatives)
- Unavoidable Adverse Impacts
- Short-Term Use versus Long-Term Productivity
- Irreversible and Irretrievable Commitment of Resources.

The environmental impacts of the alternatives are summarized in Table 2.39 at the end of Chapter 2.

Analysis Assumptions and Guidelines

The assumptions and guidelines used for analyzing the impacts of each alternative are discussed below by resource. Resources with no specific analysis assumptions and guidelines are not discussed.

These assumptions provide the basis for the cumulative impacts analysis, which is addressed in the environmental consequences for each resource and summarized at the end of each section. The cumulative impacts assessment prepared for each resource accounts for past, present, and reasonably foreseeable future actions that are relevant to determining the significant adverse impacts of the alternatives. These actions include, but are not necessarily limited to the reasonably foreseeable natural gas wells including roads and pipelines, the foreseeable visitor use on the Missouri River, the future increase in visitor use for the uplands, fire occurrence, and the many past actions that occurred in the Monument, the majority of which are identified in the affected environment (Chapter 3). These actions include limited farming of crops, water developments/range improvements, natural gas wells, pipelines,

rights-of-ways, developed recreation sites, roads, and backcountry airstrips. Through reclamation efforts a lot of these actions no longer have an impact on the environment while others have reclaimed naturally over time leaving little residual effect. Other actions are still evident, such as roads, and the impacts are addressed in the environmental consequences sections for each resource, in particular the impacts from Alternative A (Current Management), which identifies the present effects of past actions to the extent they are relevant and useful for a comparison of the alternatives.

Cultural Resources

The analysis of effects to cultural resources includes several assumptions. Regardless of which alternative is selected, the BLM will comply with all applicable laws. Mitigating measures for resource protection would be applied to all authorized actions. Each alternative is directed at protecting the objects for which the Monument was designated. The approach to protection, not the overall intent, is the difference between alternatives.

Fish and Wildlife

Greater Sage-Grouse

Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined the effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.

Disturbance near leks may disrupt breeding and cause birds to abandon traditional breeding sites, or reduce breeding success for that year. Disturbance within nesting areas may cause destruction or abandonment of nests; resulting in no hatch. These actions could contribute to the overall statewide decline in sage-grouse populations.

Sage-grouse are susceptible to disturbance during winter roosting in severe weather and temperatures. Sage-grouse operate at an energy deficit in cold winter weather when forage species are dormant and nutrient levels are poor. This requires behavior that emphasizes energy conservation. Protection of greater sage-grouse and crucial breeding, nesting, and winter habitat could promote sage-grouse survival.

Black-Tailed Prairie Dogs

Prairie dogs and many associated species are impacted by above-ground structures used by raptors for roosting and feeding. Allowing above-ground structures may cause some ground nesting and roosting birds to avoid these areas, reducing the available habitat for these specialized species.

Designated Sensitive Species

Raptors are susceptible to disturbance while nesting, and may abandon nests with eggs or chicks if the level of disturbance is unacceptable. Acceptable disturbance varies by species, but could cause the failure of nests, reducing the productivity of species already in decline.

Bald Eagle

Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.

Bald eagles are susceptible to disturbance while nesting, and may abandon nests with eggs or chicks if the level of disturbance is unacceptable. Disturbance could cause the failure of nests, reducing the productivity of a threatened species which is protected by the Endangered Species Act.

Bald eagles are susceptible to disturbance during winter roosting in severe weather and temperatures. Bald eagles operate at an energy deficit in cold winter weather when their prey species are fewer and harder to catch. This requires behavior that emphasizes energy conservation.

Big Game Winter Range

Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.

Big game ungulates operate at an energy deficit in cold winter weather when their forage species are dormant and nutrient levels are poor. This requires behavior that emphasizes energy conservation.

Bighorn Sheep Distribution and Lambing Areas

Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.

Bighorn sheep operate at an energy deficit in cold winter weather when their forage species are dormant and nutrient levels are poor. This requires behavior that emphasizes energy conservation.

Water

Except for the management of fire, all of the alternatives discussed in this plan will have only a slight, if any, impact on water resources. Each alternative complies with applicable laws and regulations such as the Clean Water Act, the Safe Drinking Water Act, the State of Montana Department of Environmental Quality regulations, and the Montana Department of Natural Resources water rights regulations. Mitigating measures for resource protection would be applied to all authorized actions. Each alternative would be directed at protecting the objects for which the Monument was designated. The management prescriptions contained in the watershed plans, which cover all allotments in the Monument, will create the greatest impact to water resources. These watershed plans are described in the Decisions Common to All Alternatives section of Chapter 2.

Minerals – Oil and Gas

The Reasonably Foreseeable Development (RFD) scenario for natural gas exploration and development is contained in Appendix K.3. This RFD is the basis for assessing cumulative impacts from further natural gas exploration and development. The RFD discusses the general exploration and development process and projects the level of anticipated activity (including the number of wells drilled and associated roads). The RFD is based on the exploration and development areas in the Monument study area, which includes the potential for 73 new natural gas wells. However, this is prior to considering any resource stipulations or conditions of approval. Even under the least restrictive alternative, Alternative B, one of the wells would most likely not be drilled.

Table 4.1 provides a summary by alternative of the number of foreseeable wells drilled, miles of new road constructed, and miles of new pipeline constructed after considering resource stipulations and conditions of approval. The cumulative impacts to oil and gas are discussed in the Impacts to Minerals – Oil and Gas section of this chapter.

The cumulative impacts may also include the potential for five natural gas wells on state or fee minerals within 1/2 mile of the Monument.

Recreation - River

Visitors to the Upper Missouri National Wild and Scenic River (UMNWSR) currently enjoy many recreation opportunities. From 1975 to 1997, use on the river stayed relatively flat, ranging from 2,000 to 3,000 visitors per year. In 1998, the river experienced a significant increase to 4,339 visitors. Since 1998, use has increased on an average of 339 registered boaters per year. Most of that increase came in 1999, and use has since ranged from approximately 5,400 to 6,034 registered boaters each year. From 2000-2004, use increased an average of 148 boaters per year.

The UMNWSR is a national destination point for boaters. However, the remote nature of the river and travel distances and time required, the multiple days required to float the river, and the lack of a nearby significant population base has kept use numbers relatively low compared to other major rivers in the country.

For the purpose of impact analysis, an increase of 5% per year in visitor use will be assumed. This increase is assumed given current management of the river. In 2004 the total registered use was 5,993. An increase of 5% per year between 2004 and 2015 would result in the annual registered use figures shown in Table 4.2.

Table 4.2 Foreseeable Annual Visitor Use on the Upper Missouri River	
<i>Year</i>	<i>Visitor Use</i>
2005	6,293
2006	6,608
2007	6,938
2008	7,285
2009	7,649
2010	8,031
2011	8,433
2012	8,855
2013	9,298
2014	9,763
2015	10,251

Recreation - Uplands

Historically, visitor use in the uplands has occurred during the hunting season, or the months of September, October, and November. While there is some activity during the summer months, historically that use has been very low.

Visitor use during the hunting season will likely continue to be a product of available big game and upland game, and the availability of opportunities afforded by Montana Fish,

Table 4.1 Reasonably Foreseeable Natural Gas Wells, Roads, and Pipelines						
<i>Activity</i>	<i>Alternative A Current Mgmt)</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D</i>	<i>Alternative E</i>	<i>Alternative F (Preferred) Alternative)</i>
Monument						
Wells (No.)	35	44	28	13	0	34
Roads (miles)	10.1	17.4	7.4	0.4	0	11.1
Pipelines (miles)	3.5	6.1	2.6	0.1	0	3.9
Other (within 1/2 mile of the Monument on federal leases)						
Wells (No.)	21	23	21	20	18	21
Roads (miles)	4.0	4.4	4.1	4.0	4.0	4.0
Pipelines (miles)	1.4	1.5	1.4	1.4	1.4	1.4
Total						
Wells (No.)	56	67	49	33	18	55
Roads (miles)	14.1	21.8	11.5	4.4	4.0	15.1
Pipelines (miles)	4.9	7.6	4.0	1.5	1.4	5.3
Another 5 wells could be drilled on state or fee minerals within 1/2 mile of the Monument						
Wells Not Drilled	12	1	19	35	50	13

Wildlife & Parks to hunt various species. Currently, approximately 300-500 people are in the uplands for the opening of big game season (October). But this number decreases to approximately 100 per week for the remainder of the season.

Summer season use (July through August), which includes hiking and motor vehicle touring, could see an increase in use as a result of the Monument designation and the increased national exposure the area has received. Approximately 100 people per week use this area during the summer. For the purpose of impact analysis a 5% increase in visitor use per year will be assumed.

Fire

Most fires are the result of lightning. Approximately 7% of the acres burned are the result of human-caused fires. The BLM does not anticipate a noticeable increase in human-caused fires.

The fire history for the last 15 years (1988-2003) for the Monument is displayed in Table 4.3.

Table 4.3 Fire Occurrence in the Monument		
Area	Fires 1988-2003	
	Number	Acres
Northern Portion	45	5,023
Southern Portion	44	2,979
Wild and Scenic River	27	1,337
WSAs and ACEC	37	4,219
Total	153	13,558

Range Improvements

Range improvements are actions initiated and implemented through activity plans or watershed plans and are not specifically analyzed in this resource management plan.

Transportation

The transportation system will identify the roads needed to meet the objectives of the Monument and the Proclamation.

A road is a linear route segment that can be created by the passage of vehicles (two-track); constructed; improved; or maintained for motorized travel. All BLM roads are associated with motorized travel.

This transportation system will consist of BLM roads that will be designated as collector roads, local roads, or resource roads and will be designated as either open yearlong, open seasonally, or closed yearlong for motorized use. Each BLM road will be assigned a maintenance level from 1 through 5. Motorized vehicle use off road is not allowed in the Monument, including 4x4s, ATVs, snowmobiles, etc.

The density (number) and miles of BLM roads could be less in the Monument and the spatial landscape (number of acres between BLM roads) could increase.

Social

The average age of the national and local populations will continue to increase.

In many cases, the social impacts are described in terms of effects to social wellbeing, which could include the amount and quality of available resources such as recreation opportunities, and resolution of problems related to resource activities. Other less tangible beliefs that could affect social wellbeing include individuals having a sense of control over the decisions that affect their future, and feeling that the government strives to act in ways that consider all stakeholders' needs.

The groupings in this section are made to facilitate the discussion of social impacts. It should be noted that these groupings generalize the members' actual beliefs and values. For instance, some ranchers engage in recreation and are particularly concerned about resource protection. Recreationists may engage in both motorized and nonmotorized activities. The social analysis will include the groups and individuals most likely to be affected by this plan.

Impacts from the Alternatives

This section describes the impacts by resource and includes impacts common to all alternatives and the impacts from the alternatives presented in Chapter 2. Only those resources that could be impacted by a particular alternative are discussed. Impact analyses and conclusions are based on interdisciplinary team knowledge of the resources, information provided by other BLM offices and agencies, and information from pertinent literature. Since the alternatives, at times, provide general management direction, the analysis may represent best estimates of impacts since specific locations and proposed actions are often unknown. Impacts are quantified to the extent practical with available data. In the absence of quantitative data, best professional judgment provides the basis for the impact analysis.

The UMNWSR designation and classification as recreational, scenic, and wild would not change under any of the alternatives. While the alternatives may affect some resources within the UMNWSR, which are discussed under the pertinent resource section in this chapter, the designation and classification would not be affected.

The designation of the Cow Creek Area of Critical Environmental Concern (ACEC) would not change under any of the alternatives. Management under any of the alternatives would protect the resources for which the area was designated; the Nez Perce National Historic Trail, the Cow Island Trail, and paleontological values.

Air Quality

Impacts to Air Quality Common to All Alternatives

The BLM will comply with national and state air quality standards, and management actions will minimize or prevent air quality degradation and protect the Class II designation in the Monument.

Air pollution is controlled through ambient air quality and emission standards and permit requirements established under the federal Clean Air Act and the Montana Clean Air Act. Montana has adopted federal ambient air standards and also has established stricter state standards for some pollutants.

Best Management Practices (BMPs) will be applied to all surface-disturbing activities to protect air quality. The smoke from wildland fires impacts air quality; however, this is a short-term impact and depends on the location, size and intensity of the fire.

Dust from vehicle traffic on unpaved roads normally occurs during June to November when climate, soils, and vegetation are usually at their driest. Fugitive dust levels would be temporary and normally quickly dispersed by thermal drafts and winds. Motorized vehicle emissions cause a very small short-term impact to localized air quality. The amount and type of emissions varies by the number of motors, type(s) of motor, motor size, and its burning efficiency. Motor emissions, like dust, are normally quickly dispersed.

The terrain surrounding pollution sources greatly influences the effects of emissions. Topographic features such as mountains, valleys or river drainages can combine to severely restrict or greatly enhance the dispersion capacity of a given airshed. These effects are highly localized and often determine how much air quality degradation may occur.

Impacts to Air Quality from Natural Gas Exploration and Development

Air Contaminants from Oil and Gas Activities

The primary air contaminants associated with routine oil and gas drilling, production and storage operations include:

- Airborne dust from construction or traffic on dirt roads
- Diesel fumes from heavy equipment operations
- Combustion byproducts from operation of flaring
- Fugitive emissions from product storage
- Venting or releasing of gases during well testing

All of these potential contaminants, except fugitive emissions, could be prevalent with natural gas operations in the Monument.

The degree to which individual pollutants become concerns depends on several factors, including:

- Characteristics of the site within each air quality region
- The type of well and the composition of the gas or oil
- Whether the pollutant is generated during site preparation, drilling, testing, production, or abandonment

Air pollution impacts the respiratory, circulatory and odor-sensing systems. Air pollutants usually enter the body through the respiratory system. The effects of various pollutants differ with concentration levels during exposure and the length of the exposure.

Particulate Matter – Particulate matter can be generated by a number of activities during drilling and production. Engines generate small amounts of particulates compared to site and road construction. Once the stable ground cover is removed, dry and exposed soil becomes highly susceptible to wind erosion. Further, vehicle traffic creates turbulence which stirs up dust. The impact of dust depends on the type, quantity and drift potential of the particles loosed into the atmosphere. Large dust particles settle out near the source, often creating a local nuisance. Fine particles are dispersed over a greater distance from the source. The potential drift distance of particles is governed by the height of the source, the size and density of the particle and the degree of atmospheric turbulence.

Tiny particulates can damage paint, reduce visibility and carry poisonous chemicals into the lungs. Short-term exposure to respirable particulates can decrease lung function in children. Long-term exposure can result in increased respiratory distress symptoms and disease, and permanent reduction in lung function in children and adults. Persons with asthma are known to be more susceptible to respiratory problems caused by particulate emissions (U.S. Environmental Protection Agency 1987b).

During a 7-day drilling/completion operation, an estimated 1,000 pounds of pollutants would be emitted per well. During the test phase, an operator would be allowed unrestricted flaring of produced gas for a 30-day period or a volume of 50 million cubic feet (MMCF) of natural gas, whichever comes first following completion. In all likelihood, development wells would not require extended flaring periods for testing (the estimated maximum flaring periods during testing would be 24-48 hours).

Presently, permanent flaring approvals are non-existent for wells within or adjacent to the Monument because all wells are prone to produce gas and they are either placed on line, shut-in, or plugged and abandoned. None of the wells would be expected to produce oil with associated gas. Therefore, after a well is tested, the operator would either complete the well and connect the well to a gas sales line, shut the well in awaiting pipeline infrastructure, or plug and abandon the well.

Nitrogen Oxides – Nitrogen oxides originate in high-temperature combustion processes, such as the operation of diesel engines. These pollutants are a component of photochemical oxidants, causing a stinking brown haze that irritates the nose and throat. Nitrogen oxide molecules occur in several different forms. The most common form found in the ambient air is nitrogen dioxide. Air quality standards are set to limit this form of nitrogen dioxide.

Malodorous/Noxious Gases – Minor amounts of odorous gases, other than hydrogen sulfide, can be present in oil and gas. Odorous sulfur compounds can be grouped into either total reduced sulfur or partially reduced sulfur compounds. A gas analysis must be performed to determine the content of these compounds for any given well.

Known as reduced organic sulfides, these sulfur compounds are typically associated with sour gas and can be present in sour gas, oil and produced water. They produce offensive odors even in minute concentrations. Chemical compounds vary widely in Montana oil and gas. Oil or gas from wells in a given formation in a field may be similar, but wells in the same field producing from different formations may produce different chemical constituents. Thus, without a gas analysis, the potential air quality impacts from venting, flaring, or on-site uses cannot accurately be determined in advance for individual wells. Only on rare occasions in Montana have oil or gas wells received air quality-related review. This usually results when there are complaints or when the operator contacts the Montana Air Quality Bureau regarding pollution control requirements.

Impacts to Air Quality from Oil and Gas Activities

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Air quality regulations define short-term impacts as lasting from a few hours to a few months. Impacts that result from site preparation, road construction, heavy equipment operation, and pre-production activities would usually be short term. Longer-term impacts would be associated with the production phase.

Site Preparation and Construction – Emissions during site preparation and rig set-up would most likely be vehicle exhaust from a number of mobile sources and dust from earth-moving activities during construction of roads, pads and pits. The most common sources would be diesel earth-moving equipment, diesel semi-trucks, and gasoline-powered vehicles and trucks. Particulate matter is the pollutant most likely to significantly impact air quality.

Particulate emissions vary substantially from day-to-day depending on the level of activity, the specific operations, and the prevailing weather. Predicting the impacts involves compilation of a particulate emission inventory from construction and drilling activities. Particulate emissions from site and access road construction would depend upon the total area disturbed. Other important determinants include the amount of silt in the soil and moisture content. Under worst case conditions, emissions of less than 25 tons per year can normally be expected from a single oil or gas well (BLM et al. 1983). Since site and road construction are usually short-term activities, access road use tends to be the major source of fugitive dust over the long term.

Drilling – An air quality permit would be required when emissions for any single pollutant exceed 100 tons per year. Administrative Rules of Montana (ARM) 17.8.744(1)(i.) exempt drilling rig stationary engines and turbines that do not have the potential to emit more than 100 tons per year and that do not operate in the same location for more than 12 months from the need to obtain an air quality permit. The Air Quality Bureau has determined that nitrogen oxides are a potential pollutant of concern for drilling rig engines greater than 1,500 horsepower. The engines typically used on drilling rigs within the Monument are 350 horsepower (about 1/4 the size of an engine considered a potential pollutant of concern). As both engine horsepower and operating periods increase, the likelihood for nitrogen oxides impact also increases.

Several procedures have the potential to impact air quality while the drilling rig is on location or just before the start of production. These include the gas and oil ratio tests, drill stem tests and the stabilized production tests. The most

significant pollutants likely to be emitted during these activities would include hydrogen sulfide gas, sulfur dioxide and volatile organic compounds. These pollutants can be emitted in varying quantities depending on the type of well and its potential flow volume.

Production – The volume of air pollution generated over the life of an oil or gas well would depend on the characteristics of the product and the production practices used. Oil and gas wells that produce hydrogen sulfide in the oil, gas or associated gas are termed sour wells. Sour wells are much more likely to cause air pollution than wells that do not produce hydrogen sulfide, termed sweet wells. Based on historical records, wells within the Monument produce neither oil nor hydrogen sulfide gas, and the gas that is produced from the wells in the Monument is considered sweet gas. Sweet gas is defined as a natural gas that has no more than the maximum sulfur content defined by the specifications for the sales of gas from a plant or the definition by a legal body such as the Railroad Commission of Texas.

Dust Mitigation – Access roads would be the major source of dust over the long term. Dust abatement measures may include watering, applying dust-suppressing chemicals, oiling, asphalt paving and reducing vehicle speed. Watering of roads may reduce fugitive dust by about 50%; chemical suppressant achieves 75-85% reduction; and oiling and asphalt paving could achieve 90-95% control. Other mitigating measures may include closure of roads to any use except drilling, production, or administrative purposes; providing a campsite at the well to reduce road use by workers, and carpooling in highly sensitive areas. Production measures to reduce traffic could include the use of remote wellhead monitoring facilities.

Nitrogen Oxides Mitigation – Nitrogen oxides from internal combustion engines would be the most difficult exhaust pollutant to control. Both vehicles and stationary drilling rig engines emit this pollutant. Good maintenance practices such as regular tune-ups and proper fuel-to-air settings should minimize these emissions. Under worst-case conditions, violations of the 1-hour and annual nitrogen oxide standards could be largely avoided by reducing operational hours or total engine horsepower rating.

Occasionally during well production, some nitrogen oxides would be emitted from the combustion of well gas in flares; however, the emissions would be minimal. As an example, if a gas well were to flare an average of 100 thousand cubic feet (MCF) per day per year, the nitrogen oxide emissions per well would average about 2 tons per year.

Using the reasonable foreseeable development (RFD) information, 5 wells could be drilled per year and assuming all 5 wells are productive, a total of 4,000 MCF or a little more than 1/5 of a ton (438 lbs.) would result. An air quality

permit is required when emissions for any single pollutant exceed 25 tons per year (ARM 17.8.744(1)(i.)). One-fifth of a ton per year is well within the limits of 25 tons per year.

Given the age and location of many of the wells, it is possible that compression facilities may be needed to market the gas. Currently, no compressors exist within the Monument; however, a small 42-horsepower compressor has been proposed on private land just outside the Monument. If and when the compressor is set, it is estimated it would emit 5.5 tons per year of nitrogen oxide, assuming it ran 100% of the time.

Prevention and Mitigation – The impacts on air quality due to production operations or well testing would be mitigated by requiring that all produced gas be either captured or flared. If the well is to be connected to a gas line, the air quality impacts would be limited to the period during which gas is tested/flared pending connection. If appropriate, a temporary flaring approval would include requirements as to how the gas would be flared. The recommended stack height would provide for efficient combustion of gas and dispersion of the resultant gases. Based on past drilling, testing, completion and production operations in the Leroy Gas Field, extended gas flaring beyond the 30-day period or a volume of 50MMCF is highly unlikely to occur. The normal flaring period for testing wells rarely goes beyond a 2-day period for typical wells within the Monument.

Summary of Cumulative Impacts to Air Quality

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Natural gas operations would affect air quality from vehicle traffic on unpaved roads, diesel fumes from heavy equipment, combustion byproducts from flaring, and the venting or releasing of gases during well testing. Smoke from wildland and/or prescribed fires could also cause air quality to deteriorate in the local area. Dust generation from other vehicle traffic on unpaved roads would add to the particulates contributed by natural gas operations and smoke. These effects are short-term and normally quickly dispersed by winds.

Cultural Resources

Impacts to Cultural Resources Common to All Alternatives

Both wildland fire and prescribed fire would have the potential to impact cultural resources. Cultural properties can be severely altered or even consumed by fire. Fire may also lead to indirect impacts such as increased erosion or

deposition. Potential impacts of prescribed fires can generally be reduced or eliminated through pre-burn planning and the implementation of specific mitigating measures. Mitigation measures applied during wildland fire suppression are far more limited because they must be general enough to cover large areas lacking specific resource data.

Impacts may occur to cultural properties as a consequence of modern use of the landscape or through deliberate vandalism. Some of the historic buildings in the Monument probably receive dozens of visitors each year. While most people are careful, inadvertent impacts may result just as they would in a private residence with many visitors. Prehistoric sites are subject to the same type of impacts, except most visitors are probably not even aware that their campsite has been used for centuries. More severe impacts result from deliberate vandalism.

Impacts to Cultural Resources from Health of the Land and Fire

Alternative A (Current Management)

Fire is a component of the natural environment which may impact cultural sites, either directly or indirectly. The direct effects of fire include consumption of flammable components or heat/smoke alteration of non-flammable components. Indirect effects include erosion as well as denuding and exposure to vandalism. Both wildland fire and prescribed fire would have the potential to cause these direct and indirect effects. The difference is that prescribed fires would be planned and staged, allowing mitigation of these effects.

Alternative B

This alternative would emphasize aggressive wildland fire suppression at the expense of prescribed fires, where mitigation and avoidance can be incorporated. Aggressive wildland fire suppression with the use of mechanized equipment could impact archaeological or historical sites. This approach would give up the benefits of planned burns and add the effects of aggressive mechanized suppression when compared to Alternatives A and E. In brief, this alternative would use a reactive, rather than proactive approach to fire management.

Alternative C

The impacts would be similar to Alternative B, except aggressive suppression would not be used in wilderness study areas. Additionally, this alternative would allow for prescribed fire with its pre-burn planning benefits, except along the UMNWSR, which would be excluded from prescribed fire.

Alternative D

This alternative would include the benefits of pre-burn planning in all fire management units, with the potential impacts of aggressive fire suppression and mechanized equipment only along the UMNWSR.

Alternative E

The impacts would be the same as Alternative A.

Alternative F (Preferred Alternative)

Fire is a component of the natural environment, which may impact cultural sites, either directly or indirectly. The direct effects of fire include consumption of flammable components or heat/smoke alteration of non-flammable components. Indirect effects include erosion as well as denuding and exposure to vandalism. Both wildland fire and prescribed fire would have the potential to cause these direct and indirect effects. The difference is that prescribed fire would be planned and staged, allowing mitigation of these effects.

Impacts to Cultural Resources from Visitor Use, Services and Infrastructure

Alternative A (Current Management)

Historic sites or events would be interpreted as opportunities arise. Currently, minimal signage or interpretation marks the Nez Perce Trail; the Lewis and Clark campsites; the Nelson, Hagadone and Gilmore Homesteads; and Decision Point. It might be expected that marked and interpreted sites would receive more visitation than unmarked sites. Increased visitation may enhance appreciation, but it may also result in more deterioration and additional maintenance.

Alternative B

This alternative would differ from current management by maximizing the number of developed visitor services. There would be a great increase in the number of signs, kiosks, developed trails and visitor services. This would ensure that virtually all visitors to the Monument are exposed to some educational/interpretive materials. However, maximizing the development of signs, kiosks and trails may alter the historic character of some cultural sites through excessive introduction of modern components or changes to the landscape. This alternative may also reduce the opportunities for the personal discovery of history by marking or signing more of the area's historic components than other alternatives.

Alternatives C and D

The development of low-key interpretive sites would expose more visitors to the history of the area than Alternative E, though perhaps not as many as Alternative B. This alternative would leave more opportunities for personal discovery than Alternative B, but less than Alternative E. Developing specific low-key interpretive sites would not likely alter the natural character of the Monument.

Guidebooks and portable exhibits make less of an impact on the landscape than permanent interpretive signs, and guidebooks usually allow more in-depth explanation than signs. However, guidebooks alone may reach fewer visitors than signs.

Alternative E

This alternative provides the maximum potential for personal discovery since there would be no developed interpretive sites or public guidebooks. However, this alternative may result in fewer visitors acquiring access to the area's history.

No permits for archaeological or historical field research would be authorized. Cultural sites would be allowed to disappear without stabilization or further investigation. This alternative would eliminate over 192 known cultural properties from further field research, as well as potential future discoveries. Permits for archaeological or historical research would still be issued for development projects in conformance with Section 106 of the National Historic Preservation Act.

Alternative F (Preferred Alternative)

The development of low-key interpretive sites as well as guidebooks and portable exhibits would expose most visitors to the history of the area. Some opportunities for personal discovery would be sacrificed in order to reach a larger audience. Additionally, some visitors may not care for any type of modern intrusions on the landscape, even interpretive displays. However, it seems likely that most visitors would consider these interpretive additions minute and inoffensive within the extensive landscapes of the Monument.

Impacts to Cultural Resources from Natural Gas Exploration and Development

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Development of existing leases would follow mitigating measures specific to the proposed action. This standard operating procedure would minimize impacts to cultural

resources. However, any surface-disturbing activity has the potential to create inadvertent or coincidental impacts to surface resources. Consequently, the alternatives resulting in the greatest surface disturbance are more likely to result in impacts for cultural and historical resources. However, the additional disturbance that may result from the alternatives is so small, that there is no practical difference between them. Additionally, the leases are confined to the uplands, which have a very low site density (as discussed in Chapter 3) and no cultural sites are currently known on the leases, further reducing the likelihood of impacts under any alternative.

No additional leases would be issued in the Monument and the potential for cumulative impacts would be confined to existing leases. Further, much of the natural gas infrastructure (roads and pipelines) already exists and associated impacts have already occurred.

Impacts to Cultural Resources from Access and Transportation

Alternatives A (Current Management) and B

Roads within the Monument improve access to some cultural properties. The road itself is unlikely to directly impact any cultural properties. Even so, open roads used during wet periods may grow in width through avoidance of muddy or deeply rutted stretches. Improved access may increase visitation and appreciation for some cultural properties. Improved access may also lead to increased erosion and vandalism of some cultural properties.

Alternatives C, D, and E

Vehicular access would be restricted in some sensitive areas, thereby reducing potential impacts from erosion and vandalism. However, Alternatives D and E would not include the potential benefits from acquiring new access.

Alternative F (Preferred Alternative)

Restricting vehicular access on some roads and proper design and placement of new access roads could help protect cultural properties.

Summary of Cumulative Impacts to Cultural Resources

Alternative A (Current Management)

Natural processes including erosion, deposition and fire would continue to impact archaeological and historical sites. These same sites may also continue to be subject to human-induced impacts such as vandalism and damage from over visitation.

Alternative B

In the long term, the cumulative effect of this alternative may be an increase in the impacts of fire to cultural properties, by eliminating the benefits of prescribed burns while allowing the impacts of aggressive suppression in addition to the impact of wildland fires themselves. There may also be a gradual change in an area's setting, from an unchanged-for-centuries setting to a you-are-here setting. Long term, this change of setting may alter the historic character of the area, since the unchanged natural setting is key to recalling the area's historic associations.

Alternative C

The impacts would be similar to Alternative A, but with fewer human-induced impacts from roads, as some roads (93 miles) would be closed to protect sensitive resources.

Alternative D

The impacts would be similar to Alternative A, but with fewer human-induced impacts from roads, as some roads (264 miles) would be closed to protect sensitive resources.

Alternative E

Cumulative impacts of this alternative may include the loss of the Monument's cultural resources from further field research since authorizations would not be issued; the eventual loss of historic buildings in the Monument since they would not be maintained; and a reduced appreciation for the historic associations of the Monument since there would be no interpretation or investigative research.

Alternative F (Preferred Alternative)

The impacts would be similar to Alternative A, but with fewer human-induced impacts from roads, as some roads (216 miles) would be closed to protect sensitive resources.

Fish and Wildlife

Impacts to Fish and Wildlife from Health of the Land and Fire

Fish and Wildlife – Greater Sage-Grouse

Alternative A (Current Management)

Surface disturbances would be prohibited between March 1 and June 30 within 1/4 mile of sage-grouse leks and nesting zones. This would protect 141 acres of breeding habitat from disturbances during breeding periods and facilitate nesting success.

Livestock grazing methods (which may include the termination of grazing by October 31) could be used to maintain sagebrush stands with 15-50% canopy cover and 15" height within 2 miles of sage-grouse leks. This would facilitate nesting success on 21,336 acres of nesting habitat by providing adequate cover.

Alternatives B, C, and D

Prescribed fire and/or mechanical treatments would be allowed to reduce or increase sagebrush cover to desired levels for nesting, brood rearing, breeding habitat, and winter habitat.

Likely nesting habitat within 2 miles of individual sage-grouse leks would be identified by field assessments. Adequate residual herbaceous cover beneath sagebrush within nesting areas would remain at the end of the grazing season to allow adequate cover for next year's nesting.

No supplemental feeding, mineral placement or other livestock congregating function would be allowed in identified active crucial sage-grouse habitat during sensitive seasonal times.

Fencing wet meadows and seeps from livestock grazing would protect late brood-rearing habitats. This could improve brood survival by maintaining a favorable forbs component and insect supply.

Sagebrush habitat would be increased through conversion of crested wheatgrass in selected areas in or near nesting habitat, and native sagebrush would be reseeded in disturbed areas.

High livestock densities would not be allowed in identified active nesting habitat from March 1 to June 15. When conditions are required for sage-grouse security, livestock grazing would not occur in identified active crucial winter habitat (sagebrush canopy of 10-30% and 10-14" height). This could affect 21,336 acres of nesting habitat and 6,866 acres of crucial winter habitat.

Alternative E

Prescribed fire and/or mechanical treatments would be allowed to reduce or increase sagebrush cover to desired levels for nesting, brood rearing, breeding habitat, and winter habitat.

Likely nesting habitat would be identified by field assessments. Adequate residual herbaceous cover beneath sagebrush within nesting areas would remain at the end of the grazing season to allow adequate cover for next year's nesting.

No supplemental feeding, mineral placement or other livestock congregating function would be allowed to occur in identified active crucial sage-grouse habitat during sensitive seasonal times.

Fencing wet meadows and seeps from livestock grazing would protect late brood-rearing habitats. This could improve brood survival by maintaining a favorable forbs component and insect supply.

Acres of sagebrush habitat would be increased through conversion of crested wheatgrass in or near all nesting habitat, and native sagebrush would be reseeded in areas that have been disturbed (e.g., fire).

Livestock grazing would not be allowed in identified sage-grouse nesting habitat from March 1 to June 15. Livestock grazing would not occur in identified crucial winter habitat (sagebrush canopy of 10-30% and 10-14" height) from December 1 to March 31. This could affect 21,336 acres of nesting habitat and 6,866 acres of crucial winter habitat.

Alternative F (Preferred Alternative)

Mechanical treatment would be considered as the primary method and prescribed fire as a secondary method to remove conifers that encroach on sage-grouse habitat, except where forested habitat is limited.

Likely nesting habitat within 2 miles of individual sage-grouse leks would be identified by field assessment. Adequate residual herbaceous cover beneath sagebrush within nesting areas would remain at the end of the grazing season to allow adequate cover for next year's nesting.

Placing salt or mineral supplements near leks would be avoided during the breeding season (March 1-June 15) and supplemental winter feeding of livestock would be avoided, where practical, on sage-grouse winter habitat and around leks.

Fencing wet meadows and seeps from livestock grazing would protect late brood-rearing habitats. This could improve brood survival by maintaining a favorable forbs component and insect supply.

Concentrations of livestock in leks or other key sage-grouse habitats should be discouraged to avoid the potential disturbance or displacement of sage-grouse.

Sage planting would be promoted, where appropriate, within sagebrush habitats. Areas disturbed by treatments (including vegetative conversions such as crested plantings, or surface-disturbing activities) would be reclaimed and/or reseeded when necessary.

Fish and Wildlife - Black-Tailed Prairie Dog Towns

Alternative A (Current Management)

In the West HiLine planning area, prairie dog towns smaller than 10 acres would not be actively managed.

In the Judith-Valley-Phillips planning area, prairie dog towns in Fergus and Chouteau Counties would be maintained or managed based on the values or problems encountered. Prairie dog towns in Phillips County would be maintained at the 1988 survey level.

Alternatives B, C, and D

Prairie dog management would utilize the 2002 Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana for overall guidance and direction (Montana Prairie Dog Working Group, 2002). Regional plans would be utilized when they are completed.

Prairie dogs towns would be allowed to expand only to the point they would not adversely impact other resources or affect Standards for Rangeland Health.

Alternative E

Prairie dog management would utilize the 2002 Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana for overall guidance and direction. Regional plans would be utilized when they are completed.

Prairie dogs towns would be allowed to expand in the Monument.

Alternative F (Preferred Alternative)

Prairie dog management would utilize the 2002 Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana for overall guidance and direction. Regional plans would be utilized when they are completed.

Prairie dogs towns would be allowed to expand only to the point they would not adversely impact other resources or affect Standards of Rangeland Health. Specific actions to address adverse impacts would be addressed through the watershed planning process.

Fish and Wildlife – Mitigation

This section addresses the effects overall for the Monument.

Alternative A (Current Management)

Greater Sage-Grouse – Mitigation for sage-grouse includes no surface use within 500 feet of sage-grouse strutting grounds and special care to avoid nesting areas associated with strutting grounds from March 1 to June 30 and crucial sage-grouse winter ranges from December 1 to May 15. This would affect 6,866 acres of crucial habitat.

Black-Tailed Prairie Dogs – Not allowing surface disturbance within 1/4 mile of prairie dog towns could adequately mitigate black-tailed prairie dogs and other sensitive status species associated with prairie dog towns. This would involve 3,932 acres.

Designated Sensitive Species – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed activity or the activity delayed 60 days. This alternative could protect sensitive status raptors by relocating surface disturbances or postponing activities during sensitive nesting periods, and it could protect raptors by repositioning the activity. Other sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes, which could promote better breeding success and species survival within the area.

Bald Eagle – Surface uses may be controlled or excluded within 1/4 mile of identified essential habitat of the bald eagle. This would affect three known bald eagle nests and 37 acres. This mitigation may promote successful nests, but a defined time and buffer may be of benefit when mitigating future surface disturbances.

Big Game Winter Range – Not allowing surface disturbance from December 1 to May 15 during severe winters would prevent additional disturbance of wintering big game during a period of physical stress. This would affect 231,885 acres of deer and elk winter range and 26,700 acres of crucial antelope winter range.

Bighorn Sheep Distribution – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed activity or the activity delayed 60 days.

Bighorn Sheep Lambing Areas – Surface-disturbing activities may be controlled or excluded within 200 meters of identified habitat or the activity delayed 60 days.

Alternative B

Greater Sage-Grouse – Mitigation for sage-grouse would include no surface disturbance on identified sage-grouse winter habitat from December 1 to March 31 (6,866 acres), no surface disturbance in identified nesting areas within 2 miles of sage-grouse leks (21,336 acres), and no surface use

within 1/4 mile of a sage-grouse lek (141 acres). This would prevent additional disturbance of wintering sage-grouse during a period of physical stress.

Black-Tailed Prairie Dogs – Prohibiting surface disturbances on prairie dog towns could preserve prairie dogs and associated sensitive status species inhabiting prairie dog towns. This would involve 507 acres.

Designated Sensitive Species – The impacts would be the same as Alternative A.

Bald Eagle – Prohibiting surface disturbance within 1 mile of active winter roosting areas from November 15 to February 29, and within 1 mile of nests from February 1 to July 31, could protect wintering bald eagles and improve nest success. This would affect three known bald eagle nests and 436 acres and would prevent additional disturbance of wintering bald eagles during periods of physical stress.

Big Game Winter Range – Prohibiting surface disturbances on identified winter ranges between December 1 and March 31 would prevent additional disturbance of wintering big game during a period of physical stress. Big game species could experience improved survival due to the reduced stress. This would affect 231,885 acres of deer and elk winter range and 26,700 acres of crucial antelope winter range.

Bighorn Sheep Distribution – The impacts would be the same as Alternative A.

Bighorn Sheep Lambing Areas – Prohibiting surface disturbances in identified bighorn sheep lambing areas between April 1 and June 15 could reduce stress to ewes during parturition and protect lambs when they are most susceptible. This mitigation could improve lamb survival and maintain or improve populations within the available habitat. This would involve 49,193 acres.

Alternative C

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – Prohibiting or minimizing surface disturbances on prairie dog towns could preserve prairie dogs and associated sensitive status species inhabiting prairie dog towns. This would involve 507 acres.

Designated Sensitive Species – Because surface-disturbing activities could be controlled or excluded within identified crucial habitat or within 1/4 mile of active nests, sensitive species raptors may have improved nesting success. Other sensitive species would be exposed to fewer disturbances

and incidental mortality due to mechanical disturbance or vehicle strikes. This could promote better breeding success and species survival within the area.

Bald Eagle – Prohibiting surface disturbance within 1/2 mile of any nest that has been active within the last 7 years could improve nesting success. This would affect three known bald eagle nests and 133 acres.

Big Game Winter Range – The impacts would be the same as Alternative B.

Bighorn Sheep Distribution – Prohibiting surface disturbances on identified bighorn sheep distribution between December 1 and March 31, would prevent additional disturbance of wintering bighorn sheep during a period of physical stress. This would involve 134,639 acres.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative B.

Alternative D

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – Prohibiting adverse surface-disturbing activities within 1/4 mile of prairie dog towns could preserve prairie dogs and associated sensitive status species inhabiting prairie dog towns. This would involve 3,932 acres.

Designated Sensitive Species – Because surface-disturbing activities could be controlled or excluded within identified crucial habitat or within 1/4 mile of active nests, sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This could promote better breeding success and species survival within the area.

Identified special status species raptors may have improved nesting success if surface-disturbing activities were prohibited from March 1 to August 1 within 1/2 mile of active nests. This mitigation would promote better breeding, nesting success, and species survival and productivity within the area.

Bald Eagle – Prohibiting surface disturbance within 1/2 mile of any nest that has been active within the last 7 years and within riparian nesting habitat could improve nesting success and preserve potential nesting habitat. This would affect three known bald eagle nests and 133 acres.

Big Game Winter Range – The impacts would be the same as Alternative A.

Bighorn Sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – Prohibiting surface disturbances within identified bighorn sheep lambing areas could improve lamb survival, reduce stress throughout the year, and maintain or improve populations within the available habitat. This would involve 49,193 acres.

Alternative E

Greater Sage-Grouse – Not allowing surface disturbance on identified sage-grouse winter habitat (6,866 acres) and within 2 miles of sage-grouse leks (21,336 acres) would prevent additional disturbance of wintering sage-grouse during periods of physical stress.

Black-Tailed Prairie Dogs – The impacts would be the same as Alternative D.

Designated Sensitive Species – Because surface-disturbing activities could be controlled or excluded within identified crucial habitat or within 1/2 mile of active nests, sensitive species raptors may have improved nesting success. Other sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This could promote better breeding success and species survival within the area.

Bald Eagle – The impacts would be the same as Alternative D.

Big Game Winter Range – Prohibiting surface disturbances on identified winter ranges would prevent additional disturbance of wintering big game during a period of physical stress. Big game species could experience improved survival due to the reduced stress. This would involve 231,885 acres of deer and elk winter range and 26,700 acres of crucial antelope winter range.

Bighorn Sheep Distribution – Prohibiting surface disturbances on identified bighorn sheep distribution areas would prevent additional disturbance of bighorn sheep during a period of physical stress. This would affect 134,639 acres.

Bighorn Sheep Lambing Areas – Prohibiting surface disturbances within 1 mile of identified bighorn sheep lambing areas could improve lamb survival, reduce stress throughout the year, and maintain or improve populations within the available habitat. This would involve 103,366 acres.

Alternative F (Preferred Alternative)

Greater Sage-Grouse – Mitigation for sage-grouse would include no surface disturbance on identified sage-grouse winter habitat from December 1 to March 31 (6,866 acres),

no surface disturbance in identified nesting areas between March 1 to June 15 within 2 miles of sage-grouse leks (21,336 acres), and no surface use within 1/4 mile of a sage-grouse lek (141 acres). This would prevent additional disturbance of wintering sage-grouse during a periods of physical stress. Where needed as additional mitigation to potential impacts, compensatory mitigation may be used to replace important habitat loss.

Black-Tailed Prairie Dogs – Prohibiting adverse surface-disturbing activities within 1/4 mile of prairie dog towns could reduce potential long-term impacts to prairie dogs and associated sensitive status species inhabiting prairie dog towns. This would involve 3,932 acres.

Designated Sensitive Species – Surface-disturbing activities could be controlled or excluded within 1/4 mile of the activity or within 1/2 mile of ferruginous hawk nests. The surface-disturbing activity could also be delayed 90 days. Other sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This would promote better breeding, nesting success, and species survival and productivity within the area.

Bald Eagle – Prohibiting surface disturbance within 1/2 mile of a nest that has been active within the last 7 years, if the disturbance could cause nest abandonment or failure, could improve nesting success and preserve potential nesting habitat. This would affect three known bald eagle nests and 133 acres. This alternative does not protect winter roosting areas, and disturbance on winter roosting habitat could cause additional energy loss and reduced productivity.

Big Game Winter Range – Prohibiting surface disturbances between December 1 and March 31 on identified winter ranges would prevent additional disturbance of wintering big game during a period of physical stress. Big game species could experience improved survival due to the reduced stress. This would affect 231,885 acres of deer and elk winter range and 26,700 acres of crucial antelope winter range.

Bighorn Sheep Distribution – Prohibiting surface disturbances on identified bighorn sheep distribution between December 1 and March 31 would prevent additional disturbance of wintering bighorn sheep during a period of physical stress. This would affect 134,639 acres.

Bighorn Sheep Lambing Areas – Prohibiting surface disturbances in identified bighorn sheep lambing areas between April 1 and June 15 could reduce stress to ewes during parturition and protect lambs when they are most susceptible. This mitigation could improve lamb survival and maintain or improve populations within the available habitat. This would affect 49,193 acres.

Vegetation

Alternative A (Current Management)

No wildlife impacts would be expected.

Alternatives B, C, and D

Pallid sturgeon could directly benefit from coordination with other agencies to allow for high water events to stimulate riparian regeneration. An increase in water flows and temperatures may trigger spawning.

Restoration of native vegetation would benefit numerous wildlife species, including designated sensitive species, and migratory and neo-tropical birds.

Alternative E

Restoration of native vegetation would benefit numerous wildlife species, including designated sensitive species, and migratory and neo-tropical birds.

Alternative F (Preferred Alternative)

Pallid sturgeon could directly benefit from coordination with other agencies to allow for high water events to stimulate riparian regeneration. An increase in water flows and temperatures may trigger spawning.

Restoration of native upland vegetation would benefit numerous wildlife species, including designated sensitive species, and migratory and neo-tropical birds.

Emphasizing riparian habitat restoration and protection would benefit migratory and neo-tropical birds, 80% of which utilize riparian habitats during breeding season or migration.

Range Improvements

Alternative A (Current Management)

New fence projects would follow standard wildlife specifications for fence installation. In some areas, current management allows for water development on terminal ridges which may lead to excessive competition between livestock and wildlife in important wildlife habitat.

Alternatives B, C, D, and E

Existing fences would be adjusted to accommodate wildlife, and unnecessary or abandoned fences would be removed. This could benefit wildlife where fences are a barrier to wildlife. Using three- versus four-wire fences would lessen barriers to wildlife movement.

Water developments would be considered on a site-specific basis. This could protect wildlife by reducing livestock/wildlife conflicts in key wildlife habitats. Some species (elk, amphibians, and some bat and bird species) would benefit from additional water sources and wetland habitat.

Alternative F (Preferred Alternative)

Existing fences would be adjusted to accommodate wildlife, and unnecessary or abandoned fences would be removed. This could benefit wildlife where fences are a barrier to wildlife. Using three- versus four-wire fences would lessen barriers to wildlife movement.

Water developments would be considered on a site-specific basis. This could protect wildlife by reducing livestock/wildlife conflicts in key wildlife habitats. Restricting reservoir or pit construction on existing wetlands and riparian areas would protect wildlife species such as amphibians, shorebirds and possibly sage-grouse which depend on these existing wetlands. Some species (elk, amphibians, and some bat and bird species) would benefit from additional water sources and wetland habitat.

Land Ownership Adjustment

Alternative A (Current Management)

No wildlife impacts would be expected.

Alternatives B, C, D, E, and F (Preferred Alternative)

The proposed exchange would potentially change the management of both the disposal and acquisition tracts. The BLM land proposed for disposal has been farmed in the past, and has good potential for being farmed again. The private land and cottonwood grove on it are already being used, without permission, by river floaters for camping, and the BLM would likely establish an official campsite at this location.

If the BLM disposal tract is not farmed there would likely be no impact to wildlife from the exchange. Farming the disposal tract would replace permanent vegetative cover with limited forage values, with either a small grain crop or alfalfa. Both options would provide abundant forage for some species of wildlife, including game and non-game birds, whitetail and mule deer. Nesting cover for birds, escape cover and habitat for rodents, reptiles and amphibians would be reduced as permanent cover is removed by harvest and crop seeding. Due to the abundance of native upland and riparian cover adjacent to this tract, impacts to wildlife would be limited by any change in management of this tract.

If no improvements are made to the acquisition tract, and it is not designated a public campsite, the level of use would likely continue at or near current levels. There would be no additional impacts to wildlife or wildlife habitat. If the BLM designates a portion of the acquisition tract (the cottonwood grove) as a campsite, use levels and impacts would increase depending on the level of upgrades. Impacts to wildlife would include loss of habitat, security, migratory bird nesting and feeding areas. These impacts would depend on the level of upgrades and increase in public use. Any developed campground proposal would require site-specific National Environmental Policy Act (NEPA) analysis to determine suitability and mitigation of potential impacts.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

There would be no impact to wildlife, as there would be no changes to the management of the BLM land that would affect vegetation and wildlife habitat.

Impacts to Fish and Wildlife from Visitor Use, Services and Infrastructure

Recreation

Alternative A (Current Management)

Camping on islands on the Missouri River would be discouraged from April 1 to July 31 to protect waterfowl nests and promote successful nesting.

The personal collection of shed antlers (horn hunting) would remain unrestricted throughout the Monument. Although it is not currently a significant impact to wildlife, there would be potential human/big game conflicts during sensitive times of the year as shed hunting continues to become more popular.

Alternative B

Camping on islands would be allowed and may create an impact to waterfowl nests. Nesting waterfowl may abandon nests, resulting in reduced hatch and lower productivity.

Collecting shed antlers (horn hunting) would have the same impact as Alternative A.

Alternative C

Camping on islands would have the same impact as Alternative B.

Collecting shed antlers (horn hunting) would be prohibited from December 1 to March 31, which could reduce human/big game conflicts that could arise when animals may be stressed from winter conditions.

Alternative D

Camping on islands on the Missouri River would not be allowed from April 1 to July 31. Seasonal timing restrictions for island camping would protect nesting areas and improve nesting successes.

The personal collection of shed antlers (horn hunting) could be prohibited from December 1 to May 15, if necessary. This closure could allow improved big game survival due to reduced stress, and the extended time could benefit affected species during extended winters.

Alternative E

A no-camping restriction on islands would protect nesting areas and improve nesting success.

Prohibiting the collection of shed antlers (horn hunting) could decrease human/big game conflicts not only during crucial times of the year, but also reduce yearlong conflicts as shed hunting becomes more popular.

Alternative F (Preferred Alternative)

Camping on islands on the Missouri River would not be allowed from April 1 to July 31. This seasonal restriction for island camping would protect nesting areas and improve nesting successes.

The personal collection of shed antlers (horn hunting) would be unrestricted throughout the Monument, although a seasonal restriction (December 1 to March 31) could be implemented to protect big game from excessive disturbance if there is a negative impact from human intrusion during sensitive winter time periods.

Upper Missouri River Special Recreation Management Area (SRMA)

Alternative A (Current Management)

Existing recreation use levels and campsites may displace wildlife during floating and hunting seasons.

Alternative B

By providing additional Level 1, 2, and 3 sites, wildlife may become displaced from valuable wildlife habitat. The additional use may diminish the existing wildlife habitat and may permanently displace wildlife as the natural habitat deteriorates.

Alternative C

The impacts would be the same as Alternative A.

Alternative D

Additional Level 2 and 3 sites could be constructed. This could impact wildlife, if the sites are created in valuable wildlife habitats such as cottonwood galleries or important riparian zones, by impacting understory and hardening sites which may, in turn, impact cottonwood rejuvenation. This could impact many species, including raptors, migratory and neo-tropical birds, bats, reptiles, amphibians, and mule and whitetail deer.

Alternative E

With only additional Level 3 sites, there could be less of an impact to wildlife than Alternatives A, B, C, and D. Although these additional sites may temporarily displace wildlife, they are less likely to permanently impact wildlife. The level of disturbance would depend on the level of use during crucial times for wildlife and the level of habitat alteration caused by human impacts.

Alternative F (Preferred Alternative)

Additional Level 1, 2, and 3 sites could be constructed. This could impact wildlife, if the sites are created in valuable wildlife habitats such as cottonwood galleries or important riparian zones, by impacting understory and hardening sites which may, in turn, impact cottonwood rejuvenation. This could impact many species, including raptors, migratory and neo-tropical birds, bats, reptiles, amphibians, and mule and whitetail deer.

Uplands Special Recreation Management Area (SRMA)

Alternative A (Current Management)

All camping is dispersed and there would be no developed camping facilities. This may benefit wildlife since there would be few areas disrupted from extended use.

Alternative B

Because there would be an opportunity to construct Level 1, 2, and 3 sites, there could be a loss of wildlife habitat, particularly if Level 1 and 2 sites were developed close to reservoirs and other valuable wildlife habitats.

Alternative C

Because Level 1 sites would be constructed only at the beginning of public access roads into the Monument, the most crucial wildlife habitat would not be impacted.

Alternative D

Level 1 sites would be prohibited and Level 2 facilities would only be located on existing main artery roads. Impacts to wildlife would be located where there is less identified crucial habitat. This would benefit wildlife, since concentrations of campers would not be located within some of the upland areas of the Monument.

Alternative E

Level 1 and 2 sites would be prohibited, which would benefit wildlife, as camping opportunities would be dispersed and impact wildlife less than concentrations of recreationists. Impacts to wildlife would be relocated outside of the Monument, where there is less identified big game winter habitat. Impacts would be reduced for big game species, but would be the same or greater for species dependent on that habitat near the edge of the Monument.

Alternative F (Preferred Alternative)

Because Level 1 sites would only be constructed at the beginning of public access roads into the Monument, less big game winter habitat would be impacted. Impacts to wildlife would be relocated outside and to the edge of the Monument, where there is less identified big game winter habitat. Impacts would be reduced for big game species, but would be the same or greater for species dependent on that habitat outside or at the edge of Monument.

Impacts to Fish and Wildlife from Natural Gas Exploration and Development

Oil and Gas Leases (Stipulations and Conditions of Approval)

Alternative A (Current Management)

Greater Sage-Grouse – On the West HiLine oil and gas leases, surface-disturbing activities may be controlled or excluded within 1/4 mile of identified sage-grouse leks, and surface use may be restricted or excluded during the nesting period from March 1 to June 30, and within crucial winter habitat from December 1 to May 15. This would affect identified nesting habitat and 441 acres of crucial winter habitat (Table 4.4).

Most non-West HiLine leases have no stipulations beyond the standard lease terms of moving activities 200 meters or detaining activities up to 60 days. Conditions of approval would be considered on a case-by-case basis during the permitting process for applications for permit to drill (APDs) but without adequate conditions in some areas, leks could be abandoned and nesting zones disrupted.

Black-Tailed Prairie Dogs – Surface use on the West HiLine leases may be restricted or excluded within 1/4 mile of special status species. This could adequately protect black-tailed prairie dogs and other sensitive status species associated with prairie dog towns and would involve 72 acres of prairie dog towns (Table 4.4).

Most non-West HiLine leases have no stipulations beyond the standard lease terms of moving activities 200 meters or detaining activities up to 60 days. Conditions of approval would be considered on a case-by-case basis during the permitting process for APDs. The leases with only standard lease terms may only adequately protect prairie dogs and prairie dog town associated sensitive status species if the acreage is low enough that 200 meters is sufficient to move the disturbance off the prairie dog town. The 60-day delay may offer temporary protection, but may impact prairie dogs and sensitive status species in subsequent years.

Designated Sensitive Species – Surface use on the West HiLine leases may be restricted or excluded within 1/4 mile of special status species, which would involve 3 acres (Table 4.4). The Rocky Mountain Guidelines are used to recommend nest buffers for various activities and range from 1/4 mile to 3 miles. Because these are only recommendations, they may be altered due to vegetation, topography, or nesting cycle time period. This stipulation may promote successful nests, but a defined time and buffer may be of benefit when mitigating future surface disturbances.

Most non-West HiLine leases have no stipulations beyond the standard lease terms of moving activities 200 meters or detaining activities up to 60 days. Conditions of approval would be considered on a case-by-case basis during the permitting process for APDs. This could protect sensitive status raptors by relocating surface disturbances or postponing activities during sensitive nesting periods. This may not provide adequate, long-term protection for sensitive raptor species. Other sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This could promote better breeding success and species survival.

Bald Eagle – Surface use on the West HiLine leases may be restricted or excluded within 1/4 mile of special status species. There are no known bald eagle nests within 1/4 mile of the West HiLine leases. This stipulation may promote successful nests, but a defined time and buffer may be of benefit when mitigating future surface disturbances.

Most non-West HiLine leases have no stipulations beyond the standard lease terms of moving activities 200 meters or detaining activities up to 60 days. Conditions of approval would be considered on a case-by-case basis during the permitting process for APDs.

Big Game Winter Range – Surface use on the West HiLine leases may be restricted or excluded from December 1 to May 15, during severe winters. This would involve 6,986 acres of deer and elk winter range and 2,561 acres of antelope crucial winter range (Table 4.4). This would prevent additional disturbance of wintering big game during a period of physical stress.

Most non-West HiLine leases have no stipulations beyond the standard lease terms of moving activities 200 meters or detaining activities up to 60 days. Conditions of approval would be considered on a case-by-case basis during the permitting process for APDs. Standard lease terms would not protect big game on winter range, and in some areas big game species could be distressed by additional activities.

Bighorn Sheep Distribution – For all the leases, surface-disturbing activities may be controlled or excluded within 200 meters of the proposed activity or the activity delayed 60 days. This would involve 14,244 acres of bighorn sheep distribution (Table 4.4).

Bighorn Sheep Lambing Areas – For all the leases, surface-disturbing activities may be controlled or excluded within 200 meters of the proposed activity or the activity delayed 60 days. This would involve 6,563 acres of bighorn sheep lambing areas (Table 4.4).

Alternative B

Greater Sage-Grouse – A condition of approval would be attached to each APD which requires no surface disturbance on identified sage-grouse crucial winter habitat from December 1 to March 31, no surface disturbance in identified nesting areas within 2 miles of sage-grouse leks, and no surface use within 1/4 mile of a sage-grouse lek. This would involve 31 acres near the leks, 5,774 acres of nesting habitat, and 441 acres of crucial winter habitat (Table 4.4). This would prevent additional disturbance of wintering sage-grouse during a periods of physical stress.

Black-Tailed Prairie Dogs—A condition of approval would be attached to each APD which would prohibit surface disturbances on prairie dog towns. This would affect 72 acres of prairie dog towns (Table 4.4) and could preserve prairie dogs and the associated sensitive status species inhabiting prairie dog towns.

Designated Sensitive Species – Surface-disturbing activities may be controlled or excluded within 200 meters of the proposed activity or the activity delayed 60 days. This could protect sensitive status raptors by relocating surface disturbances or postponing activities during sensitive nesting periods. This may not provide adequate, long-term protection for sensitive raptor species. Other sensitive

Table 4.4
Wildlife Habitat within the Oil and Gas Leases in the Monument

<i>Wildlife Habitat</i>	<i>West HiLine Leases (Acres)</i>	<i>Non-West HiLine Leases (Acres)</i>	<i>Total (Acres)</i>
Greater Sage-Grouse			
Lek (1/4-mile restriction)	0	31	31
Nesting Area (2-mile restriction)	1,276	4,498	5,774
Crucial Winter Range	441	0	441
Black-Tailed Prairie Dogs	72	0	72
Designated Sensitive Species			
1/4-mile restriction	3	532	535
1/2-mile restriction	71	2,117	2,188
Deer and Elk Winter Range	6,986	19,137	26,123
Antelope Crucial Winter Range	2,561	3,588	6,149
Bighorn Sheep Distribution	3,080	11,164	14,244
Bighorn Sheep Lambing Areas	1,059	5,504	6,563
(1-mile restriction)	3,192	10,358	13,550

species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This could promote better breeding success and species survival within the area.

Bald Eagle – A condition of approval would be attached to each APD which prohibits surface disturbance within 1 mile of active winter roosting areas from November 15 to February 29, and within 1 mile of nests from February 1 to July 31, if the disturbance could cause nest abandonment or failure. There are no known bald eagle nests within 1 mile of the oil and gas leases. This could provide protection for wintering bald eagles and improve nest success and would prevent additional disturbance of wintering bald eagles during a period of physical stress. Bald eagles are susceptible to disturbance during winter roosting in severe weather and temperatures.

Big Game Winter Range – A condition of approval would be attached to each APD which prohibits surface disturbances on identified winter ranges between December 1 and March 31. This would prevent additional disturbance of wintering big game during a period of physical stress. Big game species could experience improved survival due to the reduced stress. This would involve 26,123 acres of deer and elk winter range and 6,149 acres of antelope crucial winter range (Table 4.4).

Bighorn Sheep Distribution – The impacts would be the same as Alternative A.

Bighorn Sheep Lambing Areas – A condition of approval would be attached to each APD which prohibits surface disturbances in identified bighorn sheep lambing areas between April 1 and June 15. This could reduce stress to ewes during parturition and protect lambs when they are most susceptible. This mitigation could improve lamb survival and maintain or improve populations within the available habitat. This would affect 6,563 acres of bighorn sheep lambing areas (Table 4.4).

Alternative C

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – A condition of approval would be attached to each APD which prohibits or minimizes surface disturbances on prairie dog towns. This could preserve prairie dogs and the associated sensitive status species inhabiting prairie dog towns. This would affect 72 acres of prairie dog towns (Table 4.4).

Designated Sensitive Species – A condition of approval would be attached to each APD which prohibits surface-disturbing activities within identified crucial habitat or within 1/4 mile of active nests. This would affect 535 acres

(Table 4.4). Sensitive species raptors may have improved nesting success. Other sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This could promote better breeding success and species survival within the area.

Bald Eagle – A condition of approval would be attached to each APD which prohibits surface disturbance within 1/2 mile of any nest that has been active within the last 7 years. There are no known bald eagle nests within 1/2 mile of the oil and gas leases.

Big Game Winter Range – The impacts would be the same as Alternative B.

Bighorn Sheep Distribution – A condition of approval would be attached to each APD which prohibits surface disturbances on identified bighorn sheep distribution areas between December 1 and March 31. This would affect 14,244 acres (Table 4.4) and would prevent additional disturbance of wintering bighorn sheep during a period of physical stress.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative B.

Alternative D

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – A condition of approval would be attached to each APD which prohibits adverse surface-disturbing activities within 1/4 mile of prairie dog towns. This could preserve prairie dogs and associated sensitive status species inhabiting prairie dog towns.

Designated Sensitive Species – A condition of approval would be attached to each APD which prohibits surface-disturbing activities within identified crucial habitat or within 1/4 mile of active nests (535 acres) and from March 1 to August 1, within 1/2 mile of active nests (2,188 acres) (Table 4.4). Special status species raptors may have improved nesting success. This would promote better breeding, nesting success, and species survival and productivity within the area.

Bald Eagle – A condition of approval would be attached to each APD which prohibits surface disturbance within 1/2 mile of any nest that has been active within the last 7 years and within riparian nesting habitat. There are no known bald eagle nests within 1/2 mile of the oil and gas leases. This could improve nesting success and preserve potential nesting habitat.

Big Game Winter Range – The impacts would be the same as Alternative A.

Bighorn Sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – A condition of approval would be attached to each APD which prohibits surface disturbances within 1 mile of identified bighorn sheep lambing areas. This would involve 13,550 acres of bighorn sheep lambing areas and could improve lamb survival, reduce stress throughout the year, and maintain or improve populations within the available habitat.

Alternative E

There would be no impact to wildlife since surface disturbance would be prohibited on the oil and gas leases in the Monument.

Alternative F (Preferred Alternative)

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – The impacts would be the same as Alternative D.

Designated Sensitive Species – Surface-disturbing activities may be controlled or excluded within 1/4 mile of the activity or the activity delayed 90 days. Also, surface disturbance would be prohibited from March 1 to August 1 within 1/2 mile of active ferruginous hawk nest sites. Other sensitive species would be exposed to fewer disturbances and incidental mortality due to mechanical disturbance or vehicle strikes. This would promote better breeding, nesting success, and species survival and productivity within the area.

Bald Eagle – A condition of approval would be attached to each APD which prohibits surface disturbance within 1/2 mile of any nest that has been active within the last 7 years, if the disturbance could cause nest abandonment or failure. There are no known bald eagle nests within 1/2 mile of the oil and gas leases. This alternative does not protect winter roosting areas, and disturbance on winter roosting habitat could cause additional energy loss and reduced productivity.

Big Game Winter Range – The impacts would be the same as Alternative B.

Bighorn Sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative B.

Natural Gas Operations

Alternative A (Current Management)

Seismic – Seismic activities would be subject to wildlife mitigation measures. Cross-country seismic activity would temporarily displace wildlife and disturb habitat.

Drilling Operations – Currently, two wells per section are allowed within the Leroy Gas Field and one well per section is allowed within the Sawtooth Mountain Gas Field. These allowances may be increased to maximize natural gas extraction. If additional wells were allowed per section, there would be additional impacts to wildlife since additional surface disturbance would occur and additional roads and well pads would be constructed. It is reasonably foreseeable 35 natural gas wells could be drilled on the existing leases in the Monument.

All roads used for natural gas operations would be open without restrictions. This would allow existing impacts to wildlife with additional impacts caused by new resource roads (10.1 miles) and any increase in traffic. Impacts would include additional disturbances from traffic, and fragmentation and reduced acreage of wildlife habitat.

Production Facilities and Equipment – Cross-country pipelines would be permitted. It is reasonably foreseeable 3.5 miles of pipelines would be associated with new natural gas wells, which would cause short-term disturbance and habitat loss due to the surface-disturbing activity.

Water disposal would follow standard operating procedures. There would be no constraint for water production, so water hauling may occur without restrictions. This would impact wildlife species such as elk, bighorn sheep and other big game during sensitive times of the year (parturition, winter range use).

Standard operating procedures and BMPs would be followed for general production facilities and equipment.

Alternative B

Seismic – Seismic activities would be subject to wildlife mitigation measures. Cross-country seismic activity would temporarily displace wildlife and disturb habitat.

Drilling Operations – The BLM would recommend that no more than four well sites be allowed per section. Wildlife would be impacted if additional well pads and roads were permitted. This would cause additional disturbances from traffic, and fragmentation and reduced acreage of wildlife habitat. It is reasonably foreseeable 44 natural gas wells could be drilled on the existing leases in the Monument.

All roads used for natural gas operations would be open without restrictions. This would allow existing impacts to wildlife with additional impacts caused by new resource roads (17.4 miles) and any increase in traffic. The impacts would include additional disturbances from traffic, and fragmentation and reduced acreage of wildlife habitat.

Production Facilities and Equipment – Cross-country pipelines would be permitted. It is reasonably foreseeable 6.1 miles of pipelines would be associated with new natural gas wells, which would cause short-term disturbance and habitat loss.

Pits may be constructed to a size dependent on water production, but a maximum of two trips per month would be authorized if excess water is hauled off site. By limiting the number of vehicle trips during sensitive times of the year (parturition, winter range use), wildlife species such as elk, bighorn sheep and other big game could be protected from additional vehicular travel. Larger pits would disturb additional habitat and may attract waterfowl and other birds, which could be affected by the water quality. As pits have to be fenced to protect wildlife, a larger barrier would affect wildlife movement and use of the area.

Best Management Practices would be utilized to ensure the noise levels would be within acceptable limits to wildlife. This would protect species that may be sensitive to noise such as breeding sage-grouse, breeding and nesting migratory birds, wintering big game, sage-grouse habitats, and yearlong bighorn sheep areas.

Alternative C

Seismic – Seismic exploration would only be permitted on designated roads, which would protect wildlife species and habitat sensitive to human disturbance, over large portions of the Monument.

Drilling Operations – Currently, two wells per section are allowed within the Leroy Gas Field and one well per section is allowed within the Sawtooth Mountain Gas Field. These allowances may be increased to maximize gas extraction. If additional wells were allowed per section, there would be additional impacts to wildlife since additional surface disturbance would occur and additional roads and well pads would be constructed. It is reasonably foreseeable 28 natural gas wells could be drilled on the existing leases in the Monument.

By restricting travel to the minimal vehicle required and possible timing restrictions, the impacts to wildlife near the existing natural gas resource roads would be reduced. Impacts to wildlife would still occur, including habitat fragmentation, additional disturbances from traffic and reduced wildlife habitat on new resource roads (7.4 miles).

Production Facilities and Equipment – Pipelines would only be permitted within existing disturbances or the location that is least intrusive. It is reasonably foreseeable 2.6 miles of pipelines would be associated with new natural gas wells. This would reduce potential impacts to wildlife habitat, as the surface disturbance would be minimal, would avoid important riparian areas, and the duration of construction would be short-term.

Pits may be constructed to a size dependent on water production, but a maximum of two trips per month would be authorized if excess water is hauled off site. By limiting the number of vehicle trips during sensitive times of the year (parturition, winter range use), wildlife species such as elk, bighorn sheep and other big game could be protected from additional vehicular travel. Larger pits would disturb additional habitat and may attract waterfowl and other birds, which could be affected by the water quality. As pits have to be fenced to protect wildlife, a larger barrier would affect wildlife movement and use of the area.

Best Management Practices would be utilized to ensure the noise levels are within acceptable limits to wildlife. This would protect species that may be sensitive to noise such as breeding sage-grouse, breeding and nesting migratory birds, wintering big game, sage-grouse habitats, and yearlong bighorn sheep areas.

Alternative D

Seismic – Only helicopter-supported exploration activities would be permitted off road and exploration on existing roads would be restricted to gravitational exploration. Although wildlife and wildlife habitat may be impacted less by restricting cross-country travel, low flying aircraft could impact wildlife during breeding, parturition, or while utilizing winter range.

Drilling Operations – The impacts would be similar to Alternative C, except changes, exceptions, or modifications for spacing would not be allowed. This may benefit wildlife with less habitat fragmentation and disturbances from traffic. It is reasonably foreseeable 13 natural gas wells could be drilled on the existing leases in the Monument.

By restricting travel to the minimal vehicle required and possible timing restrictions, the impacts to wildlife near the existing natural gas resource roads would be reduced. Impacts to wildlife would still occur, including habitat fragmentation, additional disturbances from traffic and reduced wildlife habitat on new resource roads (0.4 miles).

Production Facilities and Equipment – Pipelines would follow existing disturbances or access roads. It is reasonably foreseeable 0.1 miles of pipelines would be associated

with new natural gas wells. This would cause no additional wildlife habitat loss, and would reduce potential impacts to wildlife habitat as the surface disturbance would be minimal and the duration of construction would be short-term.

Wells would be limited to producing no more than five barrels of water per day, and water hauling equipment would be prohibited. Since water transport by vehicle would be prohibited, wildlife species such as elk, bighorn sheep and other big game could be protected from additional vehicular travel. Water pits would disturb habitat and may attract waterfowl and other birds, which could be affected by the water quality. As pits have to be fenced to protect wildlife, this barrier would have some effect on wildlife movement and use of the area.

Best Management Practices would be utilized to ensure the noise levels are within acceptable limits to wildlife. This would protect species that may be sensitive to noise such as breeding sage-grouse, breeding and nesting migratory birds, wintering big game, sage-grouse habitats, and yearlong bighorn sheep areas.

Alternative E

Seismic – Only helicopter-supported exploration activities would be permitted off road and exploration on existing roads would be restricted to gravitational exploration. Although wildlife and wildlife habitat may be impacted less by restricting cross-country travel, low flying aircraft could impact wildlife during breeding, parturition, or while utilizing winter range.

Drilling Operations – Wildlife would be exposed to fewer impacts with spacing reduced to one well per section. Surface disturbances would be reduced and fewer human/wildlife conflicts may occur. If changes, exceptions, or modifications would be permitted, this would cause additional habitat fragmentation to wildlife, additional disturbances from traffic, as well as reducing wildlife habitat. However, it is reasonably foreseeable that no natural gas wells would be drilled on the existing leases in the Monument.

Production Facilities and Equipment – If natural gas wells were drilled and production occurred, pipelines would follow existing disturbances or access roads. This would cause no additional wildlife habitat loss and would reduce potential impacts to wildlife habitat, as the surface disturbance would be minimal and the duration of construction would be short term.

Any wells would be limited to producing no more than five barrels of water per day and water hauling equipment would be prohibited. Since water transport by vehicle would be prohibited, wildlife species such as elk, bighorn sheep and other big game could be protected from additional vehicu-

lar travel. Water pits would disturb habitat and may attract waterfowl and other birds, which could be affected by the water quality. As pits have to be fenced to protect wildlife, this barrier would have some effect on wildlife movement and use of the area.

Best Management Practices and Best Available Control Technology (BACT) would be utilized to ensure noise levels are within acceptable limits to wildlife. This would protect species that may be sensitive to noise such as breeding sage-grouse, breeding and nesting migratory birds, wintering big game, sage-grouse habitats, and yearlong bighorn sheep areas.

Alternative F (Preferred Alternative)

Seismic – Vehicle activity would be restricted to designated roads. Exceptions would be authorized on a case-by-case basis, dependent upon the degree of data needed to identify the resource and the operator's ability to mitigate surface disturbance. Surface blasting would be allowed on a case-by-case basis, provided the blasts would not interfere with managing the objects for which the Monument was designated. Sensitive areas would require helicopter support. This would protect wildlife species and habitat sensitive to blasting and vibration from seismic exploration.

Drilling Operations – The BLM would recommend that no more than four well sites be allowed per section. Wildlife would be impacted if additional well pads and roads were permitted. This would cause additional disturbances from traffic, and fragmentation and reduced acreage of wildlife habitat. It is reasonably foreseeable 34 natural gas wells could be drilled on the existing leases in the Monument.

By restricting travel to the minimal vehicle required and possible time restrictions, the impacts to wildlife on the existing natural gas resource roads would be reduced. Impacts to wildlife would still occur, including habitat fragmentation, additional disturbances from traffic and reduced wildlife habitat on new resource roads (11.1 miles).

Production Facilities and Equipment – Pipelines would only be permitted within existing disturbances or the location that is least intrusive. It is reasonably foreseeable 3.9 miles of pipelines would be associated with new natural gas wells. This would reduce potential impacts to wildlife habitat, as the surface disturbance would be minimal, would avoid important riparian areas, and the duration of construction would be short-term.

Pits may be constructed to a size dependent on water production, but a maximum of two trips per month would be authorized if excess water is hauled off site. By limiting the number of vehicle trips, wildlife species sensitive to

vehicular intrusion year round, such as elk, bighorn sheep and mule deer, or during sensitive times of the year (parturition, winter range use) could be protected from additional vehicular travel. Fencing and netting would prevent bird use of produced water. As pits have to be fenced to protect wildlife, this barrier would have some effect on wildlife movement and use of the area.

Best Management Practices would be utilized to ensure the noise levels would be within acceptable limits to wildlife. This would protect species that may be sensitive to noise, such as breeding sage-grouse, breeding and nesting migratory birds, wintering big game, sage-grouse habitats, and yearlong bighorn sheep areas.

Impacts to Fish and Wildlife from Access and Transportation

Access

Alternative A (Current Management)

New resource roads would be open to the general public. There would be the potential for an additional 10.1 miles of access roads to support natural gas operations and surface disturbance on 22 acres. This would degrade wildlife habitat by permitting unlimited access on new roads and surface disturbances, as well as promoting soil erosion and habitat degradation from the introduction of noxious weeds. Wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss.

Alternative B

The impacts would be the same as Alternative C, except there would be an estimated 17.4 miles of new resource roads associated with natural gas operations.

Alternative C

Public travel would be prohibited in specific areas. There would be the potential for an additional 7.4 miles of access roads to support natural gas operations. This alternative would allow travel on some of the new roads, but may close areas with wildlife concerns. This would protect wildlife and wildlife habitat, especially species that are sensitive to increased human contact.

Alternative D

The impacts would be similar to Alternative C, except there would be an estimated 0.4 miles of new resource roads associated with natural gas operations.

Alternative E

Public travel would be prohibited on all new resource roads used for natural gas operations. By prohibiting public vehicular travel on new roads, wildlife and wildlife habitat may be protected, especially species that are sensitive to increased human contact.

Alternative F (Preferred Alternative)

The impacts would be similar to Alternative C, except there would be an estimated 11.1 miles of new resource roads associated with natural gas operations.

BLM Road System

Alternative A (Current Management)

Public travel would be permitted on all roads within the Monument, although some roads would have seasonal wildlife closures. Since there would be no travel restrictions, there may be impacts to wildlife such as bighorn sheep and elk from increased vehicular use.

All existing BLM roads would be open unless currently restricted. Roads would create direct and indirect impacts to wildlife. Direct impacts would include collision mortalities, habitat loss, soil loss through runoff, and greater public access, which may lead to increased poaching, human-caused fires and increased hunting pressure. Indirect impacts would include disturbance and displacement of wildlife, habitat fragmentation, and opportunities for increased noxious weed spread and habitat degradation.

Road System Criteria

The miles of roads which would be open yearlong and seasonally are displayed in Table 4.5 for some wildlife habitat along with the acres of habitat within 1/4 mile of open roads.

Greater Sage-Grouse – There would be no public travel restrictions. Greater sage-grouse breeding success may be affected by traffic within 1/4 mile of an active lek during the breeding season. Sage-grouse nesting success may be reduced by traffic within 2 miles of a lek in nesting habitat. Sage-grouse winter survival could be compromised by traffic during stressful winter conditions on sage-grouse winter range.

Black-Tailed Prairie Dogs – There would be no public travel restrictions. Prairie dog towns accessible to vehicles would be subject to greater loss from recreational shooting.

Designated Sensitive Species – There would be no public travel restrictions. Raptors and other bird species not acclimated to vehicular disturbances could abandon nests.

Table 4.5 BLM Road Analysis for Wildlife Habitat Alternative A (Current Management)		
Wildlife Habitat	Roads Open	
	Yearlong	Yearlong and Seasonally
Elk Distribution		
Miles	320	392
Density (mile/mile ²)*	0.91	1.11
Acres within 1/4 mile	89,914	106,121
Deer and Elk Winter Range		
Miles	302	351
Density (mile/mile ²)	0.83	0.97
Acres within 1/4 mile	87,180	98,935
Antelope Crucial Winter Range		
Miles	52	52
Density (mile/mile ²)	1.25	1.25
Acres within 1/4 mile	13,529	13,653
Bighorn Sheep Distribution		
Miles	119	151
Density (mile/mile ²)	1.57	0.72
Acres within 1/4 mile	35,326	42,161
Bighorn Sheep Lambing Areas		
Miles	34	44
Density (mile/mile ²)	0.44	0.57
Acres within 1/4 mile	10,600	12,446
Sage-Grouse Crucial Winter Habitat		
Miles	18	18
Density (mile/mile ²)	1.68	1.68
Acres within 1/4 mile	3,999	4,018
Prairie Dog Towns		
Miles	<1	<1
Density (mile/mile ²)	0.29	0.29
Acres within 1/4 mile	107	107

*Miles of road per square mile of habitat on BLM land

Other wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss, reducing the productivity of species already in decline.

Bald Eagle – There would be no public travel restrictions. Disturbances within 1/2 mile of bald eagle nests may cause nest abandonment.

Big Game Winter Range – There would be no travel restrictions. This would allow additional disturbance of wintering big game during a period of physical stress. Winter survival could be compromised by traffic during stressful winter conditions.

Bighorn Sheep Distribution – There would be no travel restrictions. This would allow additional disturbance of wintering bighorn sheep during a period of physical stress. Bighorn sheep distribution could be impacted by vehicle traffic and loss of habitat security.

Bighorn Sheep Lambing Areas – There would be no public travel restrictions. Bighorn lambing success could be compromised by traffic during the lambing period.

Exceptions – Administrative access would be permitted for off-road and closed-road travel. This could degrade wildlife habitat by surface disturbances, as well as promoting soil erosion and habitat degradation from the introduction of noxious weeds. Wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss.

Motorized off-road travel for game retrieval would be prohibited. This would provide additional wildlife security during the big game hunting season.

Alternative B

Public travel would be allowed on all roads to state and private lands unless closed to meet Monument objectives. Some roads could have seasonal or permanent closures to protect objects for which the Monument was designated. This would cause fewer impacts to wildlife.

Roads would be evaluated based on erosion, impacts to wildlife habitat and security, and necessity for the road. Roads that affect wildlife security and habitat or soil stability could be closed seasonally or permanently. Additional roads may also be closed if they are redundant or do not satisfy access requirements. This would protect wildlife, especially species that are sensitive to human encroachment, and wildlife habitat.

Road System Criteria

The miles of roads which would be open yearlong and seasonally are displayed in Table 4.6 and discussed below for some wildlife habitat along with the acres of habitat within 1/4 mile of open roads.

Greater Sage-Grouse – There could be seasonal closures (March 1 to June 15) on resource roads within 1/4 mile of leks. Disturbance near leks may disrupt breeding and cause birds to abandon traditional breeding sites, or reduce breeding success for that year. Sage-grouse winter survival could

Table 4.6 BLM Road Analysis for Wildlife Habitat Alternative B		
Wildlife Habitat	Roads Open	
	Yearlong	Yearlong and Seasonally
Elk Distribution		
Miles	296	364
Density (mile/mile ²)*	0.84	1.03
Acres within 1/4 mile	84,705	100,482
Deer and Elk Winter Range		
Miles	260	319
Density (mile/mile ²)	0.72	0.88
Acres within 1/4 mile	76,051	91,286
Antelope Crucial Winter Range		
Miles	52	52
Density (mile/mile ²)	1.25	1.25
Acres within 1/4 mile	13,628	13,628
Bighorn Sheep Distribution		
Miles	79	141
Density (mile/mile ²)	0.38	0.67
Acres within 1/4 mile	24,888	39,981
Bighorn Sheep Lambing Areas		
Miles	5	42
Density (mile/mile ²)	0.07	0.55
Acres within 1/4 mile	2,997	12,238
Sage-Grouse Crucial Winter Habitat		
Miles	18	18
Density (mile/mile ²)	1.68	1.68
Acres within 1/4 mile	4,000	4,018
Prairie Dog Towns		
Miles	<1	<1
Density (mile/mile ²)	0.23	0.23
Acres within 1/4 mile	72	72

*Miles of road per square mile of habitat on BLM land

be compromised by traffic during stressful winter conditions on sage-grouse winter range.

Black-Tailed Prairie Dogs – There would be no public travel restrictions. Prairie dog towns accessible to vehicles would be subject to greater loss from recreational shooting.

Designated Sensitive Species – There could be seasonal closures on resource roads within 1/4 mile of sensitive

raptor species nests. The seasonal closures would be based on the species of raptor. This would protect sensitive status raptors during nesting periods.

Bald Eagle – There could be seasonal closures (February 1 to May 31) on resource roads within 1/2 mile of bald eagle nests. Disturbances within 1/2 mile of bald eagle nests may cause nest abandonment.

Big Game Winter Range – There would be no travel restrictions. This would allow additional disturbance of wintering big game during a period of physical stress. Winter survival and health of big game could be compromised by traffic during stressful winter conditions, reducing overall productivity.

Bighorn sheep Distribution – There would be no travel restrictions. Bighorn sheep distribution could be impacted by vehicle traffic and loss of habitat security during periods of stress.

Bighorn Sheep Lambing Areas – There would be seasonal closures (April 1 to June 15) on resource roads within identified lambing habitat. This would reduce stress to ewes during parturition and protect lambs when they are most susceptible. This restriction could improve lamb survival and maintain or improve populations within the available habitat.

Exceptions – Administrative access would be permitted for off-road and closed-road travel. This could degrade wildlife habitat by creating surface disturbances, as well as promoting soil erosion and habitat degradation from the introduction of noxious weeds. Wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss.

Motorized game retrieval would be allowed on some identified closed roads. Access on some closed roads for game retrieval would help Montana Fish, Wildlife & Parks meet big game harvest objectives for hunting districts within the Monument. This would disturb wildlife security in areas where closed roads are used for big game retrieval and indirectly impact wildlife habitat by potentially causing soil erosion and habitat degradation from the introduction of noxious weeds.

Alternative C

Public travel would be allowed on all roads to state and private lands unless closed to meet Monument objectives. Some roads could have seasonal or permanent closures to protect objects for which the Monument was designated. This would cause fewer impacts to wildlife.

Roads would be evaluated based on erosion, impacts to wildlife habitat and security, and necessity for the road,

although roads used for access to gas well sites and major range improvement projects would also allow public vehicular travel. This would protect wildlife security and habitat, especially species that are sensitive to human encroachment, but there would continue to be impacts to wildlife and habitat associated with roads that were constructed for administrative requirements.

Road System Criteria

The miles of roads which would be open yearlong and seasonally is displayed in Table 4.7 for some wildlife habitat along with the acres of habitat within 1/4 mile of open roads.

Greater Sage-Grouse – There would be seasonal closures (March 1 to June 15) on resource roads within 1/4 mile of leks and seasonal closures (December 1 to March 31) on resource roads within sage-grouse crucial winter habitat. This would protect greater sage-grouse during sensitive breeding periods and during sensitive winter periods when sage-grouse are susceptible to human encroachment and would prevent additional disturbance of wintering sage-grouse during periods of physical stress.

Black-Tailed Prairie Dogs – Prairie dog towns accessible to vehicles would be subject to greater loss from recreational shooting.

Designated Sensitive Species – The impacts would be the same as Alternative B.

Bald Eagle – The impacts would be the same as Alternative B.

Big Game Winter Range – There would be seasonal closures (December 1 to March 31) on resource roads within identified big game winter ranges. Limiting disturbances on identified winter ranges would prevent additional disturbance of wintering big game during a period of physical stress. Big game species could experience improved survival due to reduced stress.

Bighorn sheep Distribution – Bighorn sheep distribution could be impacted by vehicle traffic and loss of habitat security. For some resource roads located within crucial big game winter range, a seasonal closure would be implemented from December 1 to March 31, on a case-by-case basis. Limiting disturbances on identified winter ranges would prevent additional disturbance of wintering big game during a period of physical stress. Bighorn sheep could experience improved survival due to reduced stress.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative B.

Table 4.7 BLM Road Analysis for Wildlife Habitat Alternative C		
Wildlife Habitat	Roads Open	
	Yearlong	Yearlong and Seasonally
Elk Distribution		
Miles	267	334
Density (mile/mile ²)*	0.76	0.95
Acres within 1/4 mile	76,599	93,968
Deer and Elk Winter Range		
Miles	234	294
Density (mile/mile ²)	0.65	0.81
Acres within 1/4 mile	68,179	85,316
Antelope Crucial Winter Range		
Miles	49	49
Density (mile/mile ²)	1.17	1.17
Acres within 1/4 mile	12,836	12,883
Bighorn Sheep Distribution		
Miles	68	122
Density (mile/mile ²)	0.32	0.58
Acres within 1/4 mile	20,929	35,722
Bighorn Sheep Lambing Areas		
Miles	3	30
Density (mile/mile ²)	0.04	0.39
Acres within 1/4 mile	1,936	9,543
Sage-Grouse Crucial Winter Habitat		
Miles	18	18
Density (mile/mile ²)	1.68	1.68
Acres within 1/4 mile	3,883	3,933
Prairie Dog Towns		
Miles	<1	<1
Density (mile/mile ²)	0.23	0.23
Acres within 1/4 mile	72	72

*Miles of road per square mile of habitat on BLM land

Exceptions – Administrative access would be permitted for off-road and closed-road travel. This could degrade wildlife habitat by creating surface disturbances, as well as promoting soil erosion and habitat degradation from the introduction of noxious weeds. Wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss.

Motorized game retrieval would be allowed on some identified closed roads. Access on some closed roads for game retrieval would help Montana Fish, Wildlife & Parks meet big game harvest objectives for hunting districts within the Monument. This would disturb wildlife security in areas where closed roads are used for big game retrieval and indirectly impact wildlife habitat by potentially causing soil erosion and habitat degradation from the introduction of noxious weeds. Potential disturbances may be reduced by establishing a time window for the retrieval opportunities.

Alternative D

Public travel would be allowed on all roads to state and private lands unless closed to meet Monument objectives. Some roads could have seasonal or permanent closures to protect objects of the Monument. This would cause fewer impacts to wildlife.

The BLM would retain only necessary roads and would eliminate parallel roads, spur roads, and roads adjacent to rims. This would protect wildlife and wildlife habitat, especially species that are sensitive to human encroachment, by closing nearly 44% of the existing roads.

Road System Criteria

The miles of roads which would be open yearlong and seasonally are displayed in Table 4.8 for some wildlife habitat along with the acres of habitat within 1/4 mile of open roads.

Greater Sage-Grouse – There would be seasonal closures (March 1 to June 15) on resource roads within 2 miles of leks and seasonal closures (December 1 to March 31) on resource roads within sage-grouse crucial winter habitat. This would protect greater sage-grouse during sensitive breeding and nesting periods and during sensitive winter periods when sage-grouse are susceptible to human encroachment, and would prevent additional disturbance of wintering sage-grouse during periods of physical stress.

Black-Tailed Prairie Dogs – Prairie dog towns accessible to vehicles would be subject to greater loss from recreational shooting.

Designated Sensitive Species – There could be seasonal closures on resource roads and local roads that are within 1/4 mile of sensitive raptor species nests. The seasonal closures would be based on the species of raptor. This would protect sensitive status raptors during sensitive nesting periods.

Bald Eagle – The impacts would be the same as Alternative B.

Table 4.8 BLM Road Analysis for Wildlife Habitat Alternative D		
Wildlife Habitat	Roads Open	
	Yearlong	Yearlong and Seasonally
Elk Distribution		
Miles	186	215
Density (mile/mile ²)*	0.53	0.61
Acres within 1/4 mile	57,229	65,205
Deer and Elk Winter Range		
Miles	161	190
Density (mile/mile ²)	0.44	0.52
Acres within 1/4 mile	51,829	60,205
Antelope Crucial Winter Range		
Miles	29	35
Density (mile/mile ²)	0.70	0.84
Acres within 1/4 mile	8,234	9,779
Bighorn Sheep Distribution		
Miles	59	84
Density (mile/mile ²)	0.28	0.40
Acres within 1/4 mile	18,540	25,567
Bighorn Sheep Lambing Areas		
Miles	7	22
Density (mile/mile ²)	0.09	0.29
Acres within 1/4 mile	2,624	6,641
Sage-Grouse Crucial Winter Habitat		
Miles	7	9
Density (mile/mile ²)	0.65	0.84
Acres within 1/4 mile	2,090	2,856
Prairie Dog Towns		
Miles	<1	<1
Density (mile/mile ²)	0.23	0.23
Acres within 1/4 mile	72	72

*Miles of road per square mile of habitat on BLM land

Big Game Winter Range (elk, mule deer, pronghorn) – The impacts would be the same as Alternative C.

Bighorn sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – There would be seasonal closures (April 1 to June 15) on resource roads and local

roads within identified lambing habitat. This would reduce stress to ewes during parturition and protect lambs when they are most susceptible. This restriction could improve lamb survival and maintain or improve populations within the available habitat.

Exceptions – Administrative, government agency off-road and closed-road travel would be allowed, although permittees and lessees administering lease rights may have seasonal restrictions for off-road and closed-road travel. This could degrade wildlife habitat by creating surface disturbances, as well as promoting soil erosion and habitat degradation from the introduction of noxious weeds. Since off-road travel would continue for government agencies, wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss. Permittee and leasee off-road and closed-road travel could be mitigated to protect wildlife and wildlife habitat.

Motorized game retrieval would be allowed on some identified closed roads. Access on some closed roads for game retrieval would help Montana Fish, Wildlife & Parks meet big game harvest objectives for hunting districts within the Monument. This would disturb wildlife security in areas where closed roads are used for big game retrieval and indirectly impact wildlife habitat by potentially causing soil erosion and habitat degradation from the introduction of noxious weeds. Potential disturbances may be reduced by establishing a time window for the retrieval opportunities.

Alternative E

Public travel would be allowed on all roads to state and private lands unless closed to meet Monument objectives. Some roads could have seasonal or permanent closures to protect objects of the Monument. This would cause fewer impacts to wildlife.

The BLM would retain collector and local roads, but most resource roads would be closed. This would protect wildlife and wildlife habitat, especially species that are sensitive to human encroachment by closing nearly 82% of existing roads.

Road System Criteria

The miles of roads which would be open yearlong and seasonally are displayed in Table 4.9 for some wildlife habitat along with the acres of habitat within 1/4 mile of open roads.

Greater Sage-Grouse – There would be yearlong resource road closures within 1/4 mile of leks and a seasonal closure (December 1 to March 31) on resource roads within sage-grouse crucial winter habitat. This would protect greater sage-grouse during sensitive breeding periods and sensitive winter periods when sage-grouse are susceptible to human

Table 4.9 BLM Road Analysis for Wildlife Habitat Alternative E		
Wildlife Habitat	Roads Open	
	Yearlong	Yearlong and Seasonally
Elk Distribution		
Miles	48	52
Density (mile/mile ²)*	0.14	0.15
Acres within 1/4 mile	14,773	16,140
Deer and Elk Winter Range		
Miles	32	32
Density (mile/mile ²)	0.09	0.09
Acres within 1/4 mile	11,002	11,218
Antelope Crucial Winter Range		
Miles	6	6
Density (mile/mile ²)	0.14	0.14
Acres within 1/4 mile	1,771	1,914
Bighorn Sheep Distribution		
Miles	29	33
Density (mile/mile ²)	0.14	0.16
Acres within 1/4 mile	8,919	9,980
Bighorn Sheep Lambing Areas		
Miles	5	7
Density (mile/mile ²)	0.07	0.09
Acres within 1/4 mile	1,550	2,051
Sage-Grouse Crucial Winter Habitat		
Miles	3	3
Density (mile/mile ²)	0.28	0.28
Acres within 1/4 mile	939	972
Prairie Dog Towns		
Miles	<1	<1
Density (mile/mile ²)	0.23	0.23
Acres within 1/4 mile	72	72

*Miles of road per square mile of habitat on BLM land

encroachment. This would prevent additional disturbance of wintering sage-grouse during periods of physical stress.

Black-Tailed Prairie Dogs – Prairie dog towns accessible to vehicles would be subject to greater loss from recreational shooting.

Designated Sensitive Species – There could be seasonal closures on resource, local, and collector roads within 1/4

mile of sensitive raptor species nests based on the species of raptor. This would protect sensitive status raptors during sensitive nesting periods, primarily raptors in new high use roads.

Bald Eagle – The impacts would be the same as Alternative B.

Big Game Winter Range – The impacts would be the same as Alternative D.

Bighorn sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative D.

Exceptions – Closed roads would be open for government agencies and permittees and lessees administering lease rights. Off-road travel would be prohibited for government agencies, but allowed for lessees and permittees on a case-by-case basis. Since less off-road travel would occur, there would be fewer impacts to wildlife and wildlife habitat.

Motorized off-road travel for game retrieval would be prohibited. This would provide additional wildlife security during the big game hunting season.

Alternative F (Preferred Alternative)

Public travel would be allowed on all roads to state and private lands unless closed to meet Monument objectives. Some roads could have seasonal or permanent closures to protect objects of the Monument (e.g., diverse wildlife habitat). This would cause fewer impacts to wildlife.

Roads would be evaluated based on erosion, impacts to wildlife habitat and security, and necessity for the road. This would protect wildlife, wildlife security, and wildlife habitat, especially for those species that are sensitive to human encroachment, but there would continue to be impacts to wildlife and habitat associated with roads that were constructed for administrative requirements.

Road System Criteria

The miles of roads which would be open yearlong and seasonally are displayed in Table 4.10 for some wildlife habitat along with the acres of habitat within 1/4 mile of open roads.

Greater Sage-Grouse – Seasonal closures (March 1 to June 15) on resource roads within 1/4 mile of leks and seasonal closures (December 1 to March 31) on resource roads within sage-grouse crucial winter habitat would prevent disturbance of breeding birds, some nesting areas, and wintering sage-grouse during a periods of physical stress.

Table 4.10
BLM Road Analysis for Wildlife Habitat
Alternative F (Preferred Alternative)

Wildlife Habitat	Roads Open	
	Yearlong	Yearlong and Seasonally
Elk Distribution		
Miles	125	249
Density (mile/mile ²)*	0.35	0.70
Acres within 1/4 mile	38,561	75,102
Deer and Elk Winter Range		
Miles	95	220
Density (mile/mile ²)	0.26	0.61
Acres within 1/4 mile	31,051	68,900
Antelope Crucial Winter Range		
Miles	15	38
Density (mile/mile ²)	0.36	0.91
Acres within 1/4 mile	4,473	10,799
Bighorn Sheep Distribution		
Miles	42	105
Density (mile/mile ²)	0.20	0.50
Acres within 1/4 mile	13,254	31,798
Bighorn Sheep Lambing Areas		
Miles	7	27
Density (mile/mile ²)	0.09	0.35
Acres within 1/4 mile	2,566	8,468
Sage-Grouse Crucial Winter Habitat		
Miles	8	11
Density (mile/mile ²)	0.75	1.03
Acres within 1/4 mile	2,286	3,047
Prairie Dog Towns		
Miles	<1	<1
Density (mile/mile ²)	0.23	0.23
Acres within 1/4 mile	72	72

*Miles of road per square mile of habitat on BLM land

Black-Tailed Prairie Dogs – Prairie dog towns accessible to vehicles would be subject to greater loss from recreational shooting.

Designated Sensitive Species – Seasonal closures on resource roads within 1/4 mile of sensitive raptor species nests would protect sensitive status raptors during nesting periods and would be based on the species of raptor.

Bald Eagle – Seasonal closures (February 1 to May 31) on resource roads within 1/2 mile of bald eagle nests would protect eagles during sensitive nesting periods. Disturbances within 1/2 mile of bald eagle nests may cause nest abandonment.

Big Game Winter Range – Seasonal closures (December 1 to March 31) on resource roads within identified big game winter ranges could improve big game survival by reducing human contact and reducing stress during the winter period. Limiting disturbances on identified winter ranges would prevent additional disturbance of wintering big game during a period of physical stress. Big game species could experience improved survival due to reduced stress.

Bighorn sheep Distribution – Bighorn sheep distribution could be impacted by vehicle traffic and loss of habitat security. For some resource roads that are located within crucial big game winter range, a seasonal closure would be implemented from December 1 to March 31, on a case-by-case basis. Limiting disturbances on identified winter ranges would prevent additional disturbance of wintering big game during a period of physical stress. Bighorn sheep could experience improved survival due to reduced stress.

Bighorn Sheep Lambing Areas – Seasonal closures (April 1 to June 15) on resource roads within identified lambing habitat would protect bighorn lambs during sensitive lambing periods.

Exceptions – Administrative access would be allowed for off-road and closed-road travel. This could degrade wildlife habitat by creating surface disturbances, as well as promoting soil erosion and habitat degradation. Wildlife would experience direct impacts such as disruption, fragmentation, crushing (collisions), and habitat loss.

Motorized game retrieval would be allowed on some identified closed roads between the hours of 10 a.m. and 2 p.m. Access on some closed roads for game retrieval would help Montana Fish, Wildlife & Parks meet big game harvest objectives for hunting districts. This would disturb wildlife security in areas where closed roads are used for big game retrieval and indirectly impact wildlife habitat by potentially causing soil erosion and habitat degradation from the introduction of noxious weeds.

Aviation

Alternative A (Current Management)

The 10 existing airstrips would remain open. The surface disturbance would be minimal, although there would be an opportunity for aircraft landing to disturb bighorn sheep and lambs on the Ervin Ridge airstrip. The airstrips are displayed in Table 4.11 for some wildlife habitat.

Alternative B

Ten airstrips would be open yearlong and additional airstrips could be authorized after environmental review. The surface disturbance would be minimal, although there would be an opportunity for aircraft landings to disturb bighorn sheep and lambs on the Ervin Ridge airstrip. The airstrips are displayed in Table 4.11 for some wildlife habitat.

Alternative C

Four airstrips would be open yearlong and three would be restricted seasonally to protect wildlife in sensitive habitat or during sensitive times of the year such as during breeding or parturition, or while utilizing winter range. This would allow the same guidelines protecting wildlife from roads to

Table 4.11 Backcountry Airstrips within Wildlife Habitat Alternatives A (Current Management) and B						
<i>Airstrip</i>	<i>Elk and Deer Winter Range</i>	<i>Bighorn Sheep Distribution</i>	<i>Bighorn Sheep Lambing</i>	<i>Sage-Grouse Crucial Winter Habitat</i>		
Black Butte North	Yes	Yes	Yes	Yes		
Black Butte South	Yes					
Bullwhacker	Yes					
Cow Creek	Yes					
Ervin Ridge						
Knox Ridge						
Left Coulee	Yes	Yes				
Log Cabin	Yes	Yes				
Roadside	Yes	Yes				
Woodhawk		Yes				

Table 4.12 Backcountry Airstrips within Wildlife Habitat Alternative C				
<i>Airstrip</i>	<i>Elk and Deer Winter Range</i>	<i>Bighorn Sheep Distribution</i>	<i>Bighorn Sheep Lambing</i>	<i>Sage-Grouse Crucial Winter Habitat</i>
Black Butte North	Yes	Yes	Yes	Yes
Bullwhacker	Yes			
Cow Creek				
Ervin Ridge	Yes	Yes		
Knox Ridge	Yes			
Left Coulee	Yes	Yes		
Woodhawk		Yes		

also protect wildlife from the use of landing strips. The airstrips are displayed in Table 4.12 for some wildlife habitat.

Alternative D

Six airstrips would be open and clusters would be avoided. Four of the airstrips would have seasonal restrictions to protect wildlife. This would allow the same guidelines protecting wildlife from roads to also protect wildlife from the use of landing strips. The airstrips are displayed in Table 4.13 for some wildlife habitat.

Alternative E

Airstrips would be prohibited in the Monument. Closure of all airstrips in the Monument may protect wildlife from aircraft landings, although low-flying aircraft could impact wildlife during sensitive times of the year such as during breeding or parturition, or while utilizing winter range.

Alternative F (Preferred Alternative)

Six airstrips would be open and clusters would be avoided. Four of the airstrips would have seasonal restrictions to protect wildlife. This would allow the same guidelines protecting wildlife from roads to also protect wildlife from the use of landing strips. The airstrips are displayed in Table 4.13 for some wildlife habitat.

Summary of Cumulative Impacts to Fish and Wildlife

Alternative A (Current Management)

Big game and sage-grouse would be impacted by the use of existing roads in important wildlife habitat. About 99,000 acres of deer and elk winter range and 4,000 acres of crucial sage-grouse winter habitat are within 1/4 mile of an open BLM road.

Table 4.13 Backcountry Airstrips within Wildlife Habitat Alternatives D and F (Preferred Alternative)				
<i>Airstrip</i>	<i>Elk and Deer Winter Range</i>	<i>Bighorn Sheep Distribution</i>	<i>Bighorn Sheep Lambing</i>	<i>Sage-Grouse Crucial Winter Habitat</i>
Black Butte North	Yes	Yes	Yes	Yes
Bullwhacker	Yes			
Cow Creek				
Ervin Ridge	Yes	Yes		
Knox Ridge	Yes			
Left Coulee	Yes	Yes		

Big game and sage-grouse would continue to be impacted by existing and potential natural gas development and infrastructure in crucial habitat. About 6,900 acres of deer and elk winter range and 440 acres of crucial sage-grouse winter habitat would have a seasonal restriction from December 1 to May 15. Cross-country seismic activity would temporarily displace wildlife and disturb wildlife habitat.

Prairie dogs would be vulnerable to control or management based on the needs of vegetative and other resources. This could impact associated species including some designated sensitive species.

Current management may allow fences which would create greater impacts to wildlife passage. Current management on the use of campfires would increase the risk of fire destroying important vegetation and wildlife habitat.

Alternative B

Management under this alternative would improve habitat for sage-grouse, prairie dogs, many designated sensitive species, and in some important big game habitats.

Big game and sage-grouse would be impacted by the use of existing roads in important wildlife habitat. About 91,000 acres of deer and elk winter range and 4,000 acres of crucial sage-grouse winter habitat are within 1/4 mile of an open BLM road.

Big game and sage-grouse would be impacted by existing and potential natural gas development and infrastructure in crucial habitat. About 26,000 acres of deer and elk winter range and 440 acres of crucial sage-grouse winter habitat would have a seasonal restriction from December 1 to March 31. Cross-country seismic activity would temporarily displace wildlife and disturb wildlife habitat.

Proposed management may alter or reduce fences which act as wildlife barriers. Proposed campfire restrictions would reduce the risk of fire in important vegetation and wildlife habitat. Additional developed campgrounds would disturb additional wildlife and alter additional wildlife habitat important to many species.

Alternative C

Management under this alternative would improve habitat for sage-grouse, prairie dogs, many designated sensitive species, and in some important big game habitats.

Big game and sage-grouse would be impacted by the use of existing roads in important wildlife habitat. About 85,000 acres of deer and elk winter range and 3,900 acres of crucial sage-grouse winter habitat are within 1/4 mile of an open BLM road.

Big game and sage-grouse would be impacted by existing and potential natural gas development and infrastructure in crucial habitat. About 26,000 acres of deer and elk winter range and 440 acres of crucial sage-grouse winter habitat would have a seasonal restriction from December 1 to March 31. Seismic exploration would only be permitted on designated roads, which would protect wildlife species and habitat sensitive to human disturbance.

Proposed management may alter or reduce fences which act as wildlife barriers. Proposed campfire restrictions would reduce the risk of fire in important vegetation and wildlife habitat. Additional developed campgrounds would disturb additional wildlife and alter additional wildlife habitat important to many species. Limiting the use of motorized craft and floatplanes would reduce potential impacts to many wildlife species along the Missouri River.

Alternative D

Management under this alternative would improve habitat for sage-grouse, prairie dogs, many designated sensitive species, and in some important big game habitats.

Big game and sage-grouse would be impacted by the use of existing roads in important wildlife habitat. About 60,000 acres of deer and elk winter range and 2,900 acres of crucial sage-grouse winter habitat are within 1/4 mile of an open BLM road.

Big game and sage-grouse would be impacted by existing and potential natural gas development and infrastructure in crucial habitat. About 26,000 acres of deer and elk winter range and 440 acres of crucial sage-grouse winter habitat would have a seasonal restriction from December 1 to May 15. Although wildlife and wildlife habitat would not be affected by cross-country seismic activity, helicopter-supported activities could impact wildlife during sensitive time periods.

Proposed management may alter or reduce fences which act as wildlife barriers. Proposed campfire restrictions would reduce the risk of fire in important vegetation and wildlife habitat. Additional developed campgrounds would disturb additional wildlife and alter additional wildlife habitat important to many species. Limiting the use of motorized craft and floatplanes would reduce potential impacts to many wildlife species along the Missouri River.

Alternative E

Management under this alternative would improve habitat for sage-grouse, prairie dogs, many designated sensitive species, and in some important big game habitats.

Big game and sage-grouse would be impacted by the use of existing roads in important wildlife habitat. About 11,000 acres of deer and elk winter range and 1,000 acres of crucial sage-grouse winter habitat are within 1/4 mile of an open BLM road.

Big game and sage-grouse would continue to be impacted by existing natural gas development and infrastructure in crucial habitat but no additional impacts. If seismic activity did occur, wildlife and wildlife habitat would not be affected by cross-country seismic activity; helicopter-supported activities could impact wildlife during sensitive time periods.

Proposed management may alter or reduce fences which act as wildlife barriers. Proposed campfire restrictions would reduce the risk of fire in important vegetation and wildlife habitat. Limiting the use of motorized craft and floatplanes would reduce potential impacts to many wildlife species along the Missouri River.

Alternative F (Preferred Alternative)

Big game and sage-grouse would be impacted by the use of existing roads in important wildlife habitat. About 69,000 acres of deer and elk winter range and 3,000 acres of crucial sage-grouse winter habitat are within 1/4 mile of an open BLM road.

Big game and sage-grouse would be impacted by existing and potential natural gas development and infrastructure in crucial habitat. About 26,000 acres of deer and elk winter range and 440 acres of crucial sage-grouse winter habitat would have a seasonal restriction from December 1 to March 31. Seismic vehicle activities would only be permitted on designated roads and/or with helicopter support, which would protect wildlife species and habitat sensitive to human disturbance.

Proposed management may alter or reduce fences which act as wildlife barriers. Proposed campfire restrictions would reduce the risk of fire in important vegetation and wildlife habitat. Additional developed campgrounds would disturb wildlife and alter additional wildlife habitat important to many species. Limiting the use of motorized craft and floatplanes would reduce potential impacts to many wildlife species along the Missouri River.

Geology and Paleontology

Impacts to Geology and Paleontology from Health of the Land and Fire

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

There would be no impact, as there would be no changes to the management of BLM land that would affect geology and paleontology.

Impacts to Geology and Paleontology from Visitor Use, Services and Infrastructure

Alternatives A (Current Management), B, C, and D

The BLM would allow the development of plans to enhance geologic and paleontological resources for public information and education.

Alternative E

There would be no possibility of future activities that would increase the information about geologic or paleontologic resources.

Alternative F (Preferred Alternative)

The BLM would allow the development of plans to enhance geologic and paleontologic resources for public information and education.

Impacts to Geology and Paleontology from Natural Gas Exploration and Development

Alternative A (Current Management)

More information would become available from the correlation of well logs by allowing drilling in a wider area.

Alternatives B, C, and D

Drilling would be restricted to fewer locations on BLM land, reducing the potential to gather additional information about subsurface geology in the Monument.

Alternative E

The permitting of new wells on BLM land would be restricted. This would reduce the potential to gather additional

tional information about subsurface geology in the Monument.

Alternative F (Preferred Alternative)

Drilling would be restricted to fewer locations on BLM land, reducing the potential to gather additional information about subsurface geology in the Monument.

Impacts to Geology and Paleontology from Access and Transportation

Alternative A (Current Management)

There would be adequate roads to access the Monument for enhanced interpretation opportunities and fossil recovery.

Alternatives B, C, and D

There would be fewer opportunities to access the Monument.

Alternative E

Most existing resource roads and trails would be closed and the opportunity for access to interpretive sites and recovery of the paleontological resources would be eliminated.

Alternative F (Preferred Alternative)

There would be a minor impact on geologic and paleontologic resources by reducing access to the Monument.

Summary of Cumulative Impacts to Geology and Paleontology

Alternatives A (Current Management), B, C, and D

The flexibility to gather more information about geologic and paleontologic resources in the Monument would prevent the loss of this information due to erosion.

Alternative E

The opportunity to develop information about geologic and paleontologic resources would be eliminated.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, C, and D.

Soils

Impacts to Soils Common to All Alternatives

Surface-disturbing activities would remove protective vegetative cover, resulting in bare soil exposure, potential compaction, mixing of soil horizons, increased susceptibility to water and wind erosion, loss of topsoil, and decreased soil productivity, and site production. These impacts could result in potential accelerated erosion, runoff and off-site sedimentation, and a subsequent increase in the loss of the resource. Accelerated soil erosion is in excess of natural erosion rates and occurs when soil particles are detached and removed as a result of human and/or animal activities. Accelerated soil erosion, and the resulting sedimentation, would be difficult to distinguish from natural erosion rates due to the relatively high natural erosion rates that occur throughout the Monument. Water erosion could result during high intensity rainfall, snowmelt or runoff events. Soils are most susceptible to wind erosion when soil aggregates are broken up, dry conditions exist, and soils are bare.

Soil compaction occurs when soil particles are pressed together, which limits pore space for air/water, alters soil structure, and reduces infiltration/permeability rates and soil strength. Severity depends on soil type, soil moisture, vegetative cover, and the frequency and weight (lbs./sq. inch) of equipment passing over the soils. Severe compaction inhibits natural revegetation by reducing root penetration, restricting water and air movement, severely limiting the rate of water infiltration/permeability, increasing surface runoff, and slowing seed emergence. Soils are the most susceptible to compaction during moist conditions.

Best Management Practices (Appendix G), standard operating procedures and design standards would be implemented at the site-specific project level to mitigate and minimize impacts to the soil resource from all surface-disturbing activities.

To reduce soil loss, activities should be avoided on badlands, steep/very steep slopes, slopes susceptible to mass failure, and other areas subject to active erosion.

Vegetation

Using exclosures and changing the season of use, grazing systems and riparian pastures would help to achieve Proper Functioning Condition (PFC), which helps stabilize the uplands and riparian areas. Maintaining PFC on upland sites promotes adequate amounts of vegetative cover to stabilize soils. Maintaining PFC in riparian areas promotes the growth of deep rooted riparian vegetation that dissipates streamflow energy, stabilizes streambanks from cutting action, and filters sediment (Appendix H).

Rangeland Health/Improvements

Implementing Standards for Rangeland Health and Guidelines for Livestock Grazing Management would slowly reduce grazing impacts to soils. Soil benefits would result from maintaining or promoting adequate amounts of vegetative ground cover, plant vigor, subsurface soil conditions that support permeability rates, soil biological organisms, nutrient cycling and riparian/wetland functions (Appendix H). These improvements would reduce soil erosion, compaction, runoff and sedimentation.

Range improvement projects such as water developments would result in short-term localized soil erosion and compaction during construction. Also, retaining water would result in saturated soil pores and aerobic conditions changing over time to anaerobic conditions. Oxygen would not be available to the soil flora and fauna and biological activity would be reduced. Vegetation composition would shift to hydrophytic species. Additionally, as a result of the anaerobic environment, soils would become reduced and undergo chemical reactions that are different than non-saturated soils.

Rights-of-Way

Rights-of-way activities could create short-term soil and vegetation disturbances. Pre-disturbance or near pre-disturbance conditions would be restored through reclamation practices. Rights-of-way would be avoided in areas considered unsuitable due to erosion and slope where impacts could not be mitigated or effectively controlled. Careful planning and design of the disturbing activity could limit potential impacts. Reclamation using the appropriate BMPs (Appendix G) and mitigation measures would be required.

Visitor Use

Increased visitor and recreational use could result in increased soil and vegetation disturbances. Disturbances would occur in areas of concentrated use, such as roads, hiking trails and campgrounds. This could result in decreased soil productivity and increased soil compaction and erosion depending upon the circumstance and duration of use.

Prime Farmland

If a surface-disturbing activity is proposed on a prime farmland site, the site would be identified as prime farmland and special attention would be required during reclamation. Based on the natural gas RFD, no prime farmland soil map units would be affected by natural gas development.

Impacts to Soils from Health of the Land and Fire

Fish and Wildlife – Greater Sage-Grouse

Alternative A (Current Management)

Maintaining sagebrush with 15-50% canopy cover in greater sage-grouse habitat would provide adequate vegetative cover to protect soil particles from wind and raindrop impact. Soils within the planning area would be susceptible to wind erosion, particularly during dry soil conditions and where vegetation is sparse.

Alternatives B, C, D, and E

Leaving adequate residual herbaceous cover in greater sage-grouse habitat would provide adequate vegetative cover to protect soil particles from wind and raindrop impact. There would be short-term (less than a year) localized soil erosion and compaction during the development of off-site water for livestock. Prescribed fire and/or mechanical treatments could create short-term (1 to 3 years) soil erosion and compaction until vegetation is re-established.

Alternative F (Preferred Alternative)

Leaving adequate residual herbaceous cover in greater sage-grouse habitat would provide adequate vegetative cover to protect soil particles from wind and raindrop impact. There would be short-term (less than a year) localized soil erosion and compaction during the development of off-site water for livestock. Prescribed fire and/or mechanical treatments could create short-term (1 to 3 years) soil erosion and compaction until vegetation is re-established. Soils within the planning area would be susceptible to wind erosion, particularly during dry soil conditions and where vegetation is sparse.

Fish and Wildlife – Black-Tailed Prairie Dog Towns

Alternative A (Current Management)

Every acre a prairie dog town expands could be rated in poor ecological condition (early seral) and could contribute to not meeting Standards for Rangeland Health. Bare soil exposure, soil erosion and vegetation loss could increase, which could reduce soil productivity and site production.

Alternatives B, C, and D

Prairie dog expansion in the Monument would be allowed; however, the soil resource would be protected in those expansion areas by following guidance from Standards for Rangeland Health (Appendix H). This would ensure that

soils remain stable and accelerated erosion, in the form of rills and/or gullies, is minimal.

Alternative E

The impacts would be the same as Alternative A.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives B, C, and D.

Forest Products

Alternative A (Current Management)

Harvesting forest products and vegetation manipulation treatments would result in localized soil compaction, rutting and bare soil exposure. This could result in increased short-term (1 to 2 years) surface runoff, sedimentation, erosion and decreased slope stability. Impacts would be addressed in site-specific NEPA analyses and silviculture plans. Best Management Practices (Appendix G) would mitigate and reduce impacts.

Alternatives B, C, and D

Harvesting forest products that are incidental and associated with other projects/activities or where forest/woodland health is in jeopardy would result in localized soil compaction, rutting and bare soil exposure. This could result in increased short-term (1 to 2 years) surface runoff, sedimentation, erosion and decreased slope stability. Impacts would be addressed in site-specific NEPA analyses and silviculture plans. Best Management Practices (Appendix G) would mitigate and reduce impacts.

Alternative E

No soil impacts would occur because commercial products sales and incidental personal use would be prohibited.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives B, C, and D.

Land Ownership Adjustment

Alternative A (Current Management)

There would be no soil impacts because no lands would be identified for disposal or acquisition; therefore, soil conditions would remain as they are.

Alternatives B, C, D, E, and F (Preferred Alternative)

Wind and water erosion could increase and soil productivity could decrease assuming the proposed disposal lands are converted from native vegetation to cultivated agricultural crops. However, if such agricultural practices were in compliance with Natural Resources Conservation Service (NRCS) conservation plans, erosion would be minimized.

Soil and vegetation disturbances could increase if the proposed acquired lands were to be used as a campground. This could result in decreased soil productivity and increased soil compaction and erosion. The severity would depend upon the circumstance and duration of use.

Neither the disposal nor the acquisition lands contain prime farmlands; therefore, there would be no unnecessary and irreversible conversion of prime or unique farmland to non-agricultural uses.

Fire

Prescribed and wildland fires cause short-term localized soil erosion, runoff and sedimentation. Factors such as intensity, duration, soil moisture, vegetation type, fuel type and density, and time of year determine the severity of the impacts to soil physical, chemical and biological properties. As vegetation recovers the impacts diminish. Recovery typically occurs within 1 to 3 years resulting in minimal effects to the long-term productivity of a site. Soil impacts are typically less severe from prescribed fire than from wildland fire. Prescribed fires reduce fuel loading, minimizing the risk of catastrophic wildland fires. Impacts from prescribed fires would be addressed in site-specific NEPA analyses and burn plans. Limiting the use of heavy equipment during aggressive suppression would benefit the soil resource within the Monument. Past use of this type of equipment has scarred the land, particularly on sparsely vegetated shallow soils that do not recover well from disturbance.

Alternative A (Current Management)

Prescribed and wildland fires would cause increased short-term (1-3 years) localized soil erosion, sedimentation and runoff. Soil impacts could occur on approximately 35,000 acres proposed for treatment with prescribed fire as directed in watershed plans within the Monument (Armells, Upper Missouri, Arrow Creek and the Monument portion of the Bears Paw to Breaks).

Soil impacts from wildland fire would be localized and dependent on the intensity of the fire.

Alternative B

The soil impacts would be similar to those in Alternative A, except soil disturbances from wildland fire could be reduced because such fires would be suppressed aggressively using all available methods including mechanical. Should earth-moving equipment be authorized for use, careful consideration would be given to how and where it is used, in order to minimize potential impacts from erosion.

Short-term (1-3 years) soil erosion, sedimentation and runoff associated with prescribed fires would only occur in the Wilderness Study Area Fire Management Unit (FMU). Within all other FMUs, prescribed fire would be excluded; therefore, there would be a greater risk of catastrophic wildland fire, which could create a greater impact to soils.

Alternative C

The potential of using prescribed fire to treat 20,000 acres (per direction from the BLM Fire/Fuels Management Plan Environmental Assessment/Plan Amendment for Montana and the Dakotas (BLM 2003e) and the various watershed plans that include Monument land) could create short-term (1-3 years) localized soil erosion, sedimentation and runoff. Under this alternative, soil impacts from prescribed fire would be less than those described in Alternatives A, D, and E.

Soil impacts from aggressive wildland fire suppression within the Wild and Scenic River FMU would be the same as in Alternative B.

Alternative D

Prescribed and wildland fires cause increased short-term (1-3 years) localized soil erosion, sedimentation and runoff, as described in the introduction to this section. Potentially returning 250,000 acres back to Condition Class 1 would also result in short-term (1 to 3 years) soil impacts. However, doing this would result in the largest number of acres treated to reduce potential hazardous fuel loading and catastrophic wildland fires.

Soil impacts from aggressive wildland fire suppression within the Wild and Scenic River FMU would be the same as those in Alternative B.

Alternative E

Soil impacts from prescribed fire would be similar to those in Alternative D, less the potential soil impacts of returning 250,000 acres back to Condition Class 1.

There would be no soil impacts from aggressive wildland fire suppression within the Wild and Scenic River FMU.

Alternative F (Preferred Alternative)

Soil impacts from prescribed fire would be similar to those in Alternative D, less the potential soil impacts of returning 250,000 acres back to Condition Class 1.

Soil impacts from aggressive wildland fire suppression within the Wild and Scenic River FMU would be the same as in Alternative B.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

There would be no impact, as there would be no changes to the management of BLM land that would affect soils.

Impacts to Soils from Visitor Use, Services and Infrastructure

Upper Missouri River SRMA

Alternative A (Current Management)

Opportunities for Boaters – Having no limits on the number of boaters and the duration of their stay on the Missouri River could increase soil impacts. As user numbers and user days increase, so does the potential for long-term soil and vegetation disturbances. This would result in decreased soil productivity and increased soil compaction and erosion within areas of concentrated use.

Motorized Watercraft – Wakes from motorized watercraft could impact shore stability, resulting in increased sediment in the Missouri River. However, these effects would be minimal in areas where there is deep root riparian vegetation which armors and stabilizes soils on stream/river banks.

Alternative B

Opportunities for Boaters – The impacts would be the same as Alternative A.

Camping Facilities – Providing more Level 1, 2 and 3 sites could increase the number of recreation users, resulting in increased soil and vegetation disturbances. Soil compaction and erosion could increase and soil productivity could decrease in recreational use areas. However, creating improved facilities could confine the disturbances to those developed areas, assuming recreational use is shifted to those areas. There is the potential for short-term (less than a year) localized soil compaction and erosion during the construction of Level 1 and 2 sites.

Motorized Watercraft – Wakes from motorized watercraft could impact shore stability, resulting in increased sediment in the Missouri River. However, these effects would be minimal in areas where there is deep root riparian vegetation which armors and stabilizes soils on stream/river banks.

Alternative C

Opportunities for Boaters – Soil impacts would be similar to those in Alternatives A and B regarding no limits on the number of boaters and the duration of their stay on the Missouri River. Implementing management adjustments through standard and indicators (Appendix K) would protect soils.

Camping Facilities – Providing additional Level 1 sites in the recreation segments of the river and additional Level 2 sites between Fort Benton and Judith Landing could increase the number of recreation users, resulting in increased soil and vegetation disturbances. Soil compaction, erosion and decreased soil productivity would increase in recreational use areas. However, creating improved facilities could confine these disturbances to the developed areas, assuming use is shifted to those areas. There is the potential for short-term (less than a year) localized soil compaction and erosion during the construction of Level 1 and 2 sites.

Restricting the duration of overnight camping at Level 2 sites, during core use periods on the river, could result in fewer recreational user disturbances to soils and vegetation at those sites.

Motorized Watercraft – Wakes from motorized watercraft could impact shore stability, resulting in increased sediment in the Missouri River. However, these effects would be minimal in areas where there is deep root riparian vegetation, which armors and stabilizes soils on stream/river banks.

Alternative D

Opportunities for Boaters – Soil impacts would be similar to those in Alternative C regarding no limits on the number of boaters and protection to soils from management adjustments when standard and indicators (Appendix K) are reached or exceeded. However, where a seasonal or temporary emergency allocation system is developed and implemented, boater numbers could be reduced, resulting in fewer soil disturbances. This could improve soil conditions and return soil productivity.

Camping Facilities – Restricting the duration of overnight camping at Level 2 sites, during core use periods on the river, could result in fewer recreational user disturbances to soils and vegetation at those sites.

There is the potential for short-term (less than a year) localized soil compaction and erosion during the construction of Level 2 sites in the recreation segments of the river.

Motorized Watercraft – Wakes from motorized watercraft could have an impact on shore stability resulting in increased sediment in the Missouri River. However, these effects would be minimal in areas where there is deep root riparian vegetation which armors and stabilizes soils on stream/river banks.

Alternative E

Opportunities for Boaters – This alternative would create the fewest soil disturbances as it would restrict the number of boaters, the duration of their stay and campsite development. Soil and vegetation disturbances, compaction and erosion could decrease.

Motorized Watercraft – There would be no soil impacts from wake action because motorized watercraft would be prohibited.

Alternative F (Preferred Alternative)

Opportunities for Boaters – Soil impacts would be similar to those in Alternatives A and B regarding no limits on the number of boaters and related potential soil impacts. Soils would be protected by management adjustments when standard and indicators (Appendix K) are reached or exceeded. Desired Future Condition (DFC) indicates that soil erosion from human use would be minimal and areas around campsites would support natural vegetation.

Camping Facilities – Providing additional Level 1 sites in the recreation segments of the river and additional Level 2 sites between Fort Benton and Judith Landing could increase the number of recreation users, resulting in increased soil and vegetation disturbances. Soil compaction, erosion, and decreased soil productivity would increase in recreational use areas. However, creating improved facilities could shift recreational use, thus confining the disturbances to developed areas. There is the potential for short-term (less than a year) localized soil compaction and erosion during the construction of Level 1 and 2 sites.

Restricting the duration of overnight camping at Level 2 sites, during core use periods on the river, could result in fewer recreational user disturbances to soils and vegetation at those sites.

Motorized Watercraft – Wakes from motorized watercraft could impact shore stability, resulting in increased sediment in the Missouri River. However, these effects would be minimal in areas where there is deep root riparian vegetation which armors and stabilizes soils on stream/river banks.

Uplands SRMA

Alternative A (Current Management)

Continual use in dispersed camping areas could create long-term impacts to soils and vegetation. Soil compaction could increase, resulting in decreased site production and soil productivity at those sites.

Alternative B

Providing more Level 1, 2 and 3 sites could increase the number of recreation users, resulting in increased soil and vegetation disturbances. Soil compaction and erosion could increase and soil productivity could decrease in recreational use areas. However, creating improved facilities could confine the disturbances to those developed areas, assuming recreational use is shifted to those areas. There is the potential for short-term (less than a year) localized soil compaction and erosion during the construction of Level 1 and 2 sites.

Alternative C

Soil impacts would be similar to those in Alternative B, except soil disturbances from vehicular travel could be less because of the shorter distances to Level 1 sites.

Alternative D

Providing no Level 1 sites could reduce visitor use, resulting in fewer soil disturbances associated with these sites. However, not having improved facilities could increase soil disturbance at the Level 3 sites and dispersed opportunity areas. Impacts would depend on the frequency and circumstance of use.

Alternative E

Providing no Level 1 and 2 sites could reduce visitor use, resulting in fewer soil disturbances associated with these sites. However, not having improved facilities could increase soil disturbance at Level 3 sites and dispersed (Level 4) opportunity areas. Impacts would depend on frequency and the circumstances of use.

Alternative F (Preferred Alternative)

Providing additional Level 1 sites in the recreation segments of the river and additional Level 2 sites between Fort Benton and Judith Landing could increase the number of recreation users, resulting in increased soil and vegetation disturbances. Soil compaction, erosion, and decreased soil productivity would increase in recreational use areas. However, creating improved facilities could shift recreational use, thus confining the disturbances to developed areas. There is the potential for short-term (less than a year)

localized soil compaction and erosion during the construction of Level 1 and 2 sites.

Impacts to Soils from Natural Gas Exploration and Development

Introduction

Natural gas development would impact soils during exploration, drilling, production and abandonment; resulting in bare soil exposure, potential compaction, mixed soil horizons, increased susceptibility of water and wind erosion, loss of topsoil, and decreased soil productivity. These impacts could result in potential accelerated erosion, runoff, and off-site sedimentation, and a subsequent increase in the loss of the resource. Accelerated soil erosion would occur when protective vegetative cover and litter is removed, exposing bare soil.

Accelerated soil erosion and resulting sedimentation would be difficult to distinguish from natural erosion rates because of the minimal amounts of soil disturbance from natural gas development compared to the relatively high natural erosion rates throughout the Monument. Wind erosion would be minor with the exception of dust resulting from vehicle traffic. Activities that could cause these impacts include construction and operation of well sites, pits, access roads, pipelines, and ancillary facilities. Impacts are both short-term (well pads and pipelines) and long-term (access roads and production areas). After reclamation and vegetation is re-established, there would be minimal or no residual effects. Impacts would be greatest on shallow soils with relatively low vegetative cover and soils on steep and very steep slopes.

Site-specific mitigation measures would be implemented to minimize impacts to the soil resource. To control erosion and sedimentation, construction activities would be designed following BMPs, standard operating procedures, and guidance from Surface Operating Standards for Oil and Gas Exploration and Development (the Gold Book).

To reduce soil loss, activities should be avoided on badlands, steep/very steep slopes, slopes susceptible to mass failure, and other areas subject to active erosion.

Interim reclamation of areas not needed for production and operations would be initiated immediately after completion of a well. Once vegetation is re-established, soil conditions should return to natural conditions within 1 to 3 years. Generally, soil erosion rates are greater on recently rehabilitated areas and decrease over time to natural levels in about 3 years. Areas needed for production on a well site, access road and facilities would require a long-term commitment of the soil resource. These sites remain non-productive and continue to be at risk of erosion until abandonment and reclamation.

Vehicular/equipment traffic associated with exploration, development and production of natural gas could cause soil compaction and rutting. Severity is dependent on soil type, soil moisture, vegetative cover, frequency and weight (lbs./sq. inch) of equipment. Soils are the most susceptible to compaction and rutting during moist or wet conditions. Soils could be impacted by fluid spills such as engine oil, hydraulic oil and fuel (gasoline or diesel), and leaks within pipeline infrastructure. These spills and leaks could severely affect soil in localized areas; excessive concentrations may cause soil sterilization.

Oil and Gas Lease Stipulations and Conditions of Approval

Alternative A (Current Management)

West HiLine Leases – Soils would be protected by a stipulation intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems.

The stipulation states that surface use or occupancy within special areas would be strictly controlled, or if absolutely necessary, excluded. Special areas in this case would be slopes over 30%, or 20% on extremely erodible or slumping soils. Use or occupancy would be restricted only when the BLM demonstrates the restriction is necessary for the protection of such special areas. If it were demonstrated that the impacts from the proposed surface use or occupancy to the soil resource could not be mitigated, the authorized officer would have the authority to exclude surface use or occupancy. This would provide protection to the soil resource where erosion could not be effectively controlled or site productivity returned. About 3,394 of the 10,328 acres of oil and gas leases are on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils.

Soils would be stabilized by vegetative cover and accelerated erosion potential would be eliminated within 1 to 3 years following reclamation.

Based on the RFD, there could be one new well site on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Non-West HiLine Leases – Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems.

Restricting surface disturbance on slopes over 30% or on slopes over 20% with severely erodible and/or slumping soils would reduce the potential for accelerated soil erosion from disturbance on steep slopes. This stipulation would be applied to leases dated after 1973. Three leases dated between July 1971, and May 1973, have lease term stipulations that state approval would be conditioned on reasonable requirements needed to prevent soil erosion. Leases prior to 1971 contain no specific soil lease stipulations other than the standard lease terms and conditions (200 meters or 60 days).

Use or occupancy would be restricted only when the BLM demonstrates the restriction is necessary to protect the resource. If the soil impacts from the proposed surface use or occupancy cannot be mitigated, the authorized officer would have the authority to exclude surface use or occupancy. This would protect the soil resource where erosion could not be effectively controlled or site productivity returned. About 10,687 of the 32,477 acres of oil and gas leases are on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils.

Based on the RFD, there is no potential for new well sites on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Alternative B

West HiLine Leases – Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 1,683 of the 10,328 acres of oil and gas leases are on slopes 30% and greater.

Based on the RFD, there could be one new well site on slopes 30% and greater.

Non-West HiLine Leases – Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 5,352 of the 32,477 acres of oil and gas leases are on slopes 30% and greater.

Based on the RFD, there could be one new well site on slopes 30% and greater.

Alternative C

West HiLine Leases – This alternative would place additional restrictions and requirements on natural gas development to protect soil resources. Soils would be protected by a condition of approval intended to maintain soil productivity.

ity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 3,394 of the 10,328 acres of oil and gas leases are on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Based on the RFD, there would be no new well sites on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Non-West HiLine Leases – This alternative would place additional restrictions and requirements on natural gas development to protect soil resources. Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 10,687 of the 32,477 acres of oil and gas leases are on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Based on the RFD, there is no potential for new well sites on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils. There would be no new access roads on slopes 40% and greater.

Alternative D

West HiLine Leases – These alternatives would place additional restrictions and requirements on natural gas development to protect soil resources. Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 3,394 of the 10,328 acres of oil and gas leases are on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils.

Based on the RFD, there is no potential for new well sites on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Non-West HiLine Leases – This alternative would place additional restrictions and requirements on natural gas development to protect soil resources. Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 10,687 of the 32,477 acres of oil and gas leases are on slopes

30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Based on the RFD, there is no potential for new well sites on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Alternative E

West HiLine Leases – Prohibiting surface occupancy and use on slopes 20% and greater would protect soils from potential water erosion on steep slopes. All operations would be avoided on slopes greater than 20%.

About 3,398 of the 10,328 acres of oil and gas leases are on slopes 20% and greater. Based on the RFD, there would be no wells drilled on BLM-managed mineral estate within the next 15 to 20 years.

Non-West HiLine Leases – Prohibiting surface occupancy and use on slopes 20% and greater would protect soils from potential water erosion on steep slopes. All operations would be avoided on all slopes greater than 20%. About 11,616 of the 32,477 acres of oil and gas leases are on slopes 20% and greater.

Alternative F (Preferred Alternative)

West HiLine Leases – This alternative would place additional restrictions and requirements on natural gas development to protect soil resources. Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 3,394 of the 10,328 acres of oil and gas leases are on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils.

It is BLM's experience that operations on slopes 20% and greater can be successfully reclaimed and erosion can be effectively controlled. Reclamation practices, devices and equipment continue to improve and have demonstrated that site productivity can be returned on slopes 20% and greater; therefore, reasonable performance-based exceptions could be granted.

Soils would be stabilized by vegetative cover and accelerated erosion potential would be eliminated within 1 to 3 years following reclamation.

Based on the RFD, there could be one new well site on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Non-West HiLine Leases – This alternative would place additional restrictions and requirements on natural gas development to protect soil resources. Soils would be protected by a condition of approval intended to maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep and very steep slopes, and to avoid areas subject to slope failure, mass wasting, piping and/or having excessive reclamation problems. About 10,687 of the 32,477 acres of oil and gas leases are on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Based on the RFD, there could be one new well site on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils.

Natural Gas Operations

Alternative A (Current Management)

Seismic Allowing all types of seismic operations could lead to short-term soil compaction and rutting in areas of operation; resulting in increased surface runoff and subsequent erosion. Impacts would be greatest on shallow, sparsely vegetated soils on steep and very steep slopes.

Drilling Operations – Based on the RFD, there could be 35 new natural gas wells (in addition to the 12 existing wells) drilled on federal minerals in the Monument, most likely within the next 15 to 20 years. This would disturb 71 acres in addition to the 136 existing acres of soil for the construction of the well sites, access roads and pipelines. Interim reclamation of areas not needed for production and operations would be initiated immediately after completion. Rehabilitating parts of the well pads and pipelines during production would reduce soil disturbance to 24 acres. There would be a long-term commitment of the soil resource on 23 acres required for access roads and facilities.

Soils would be stabilized by vegetative cover, and accelerated erosion potential would be eliminated within 1 to 3 years following reclamation.

Access with no restrictions could result in soil rutting and compactions from vehicle and equipment movement during wet/moist soil conditions.

Based on the RFD, there is the potential for 216 feet of new access roads on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils. These are not contiguous feet, rather a representation of cumulative segments of roads.

Production Facilities and Equipment – Pipelines allowed cross-country would disturb soils and the protective vegetation during installation. This would result in short-term (1 to 2 years) localized accelerated soil erosion.

Design standards and mitigation measures would reduce the severity of the impacts to soils and require prompt revegetation of the disturbed areas. Soil conditions and site productivity could easily be returned with proper design, construction methods and reclamation practices.

Alternative B

Seismic – Allowing all types of seismic operations could lead to short-term soil compaction and rutting, resulting in increased surface runoff and subsequent erosion. Impacts would be greatest on shallow, sparsely vegetated soils on steep and very steep slopes.

Drilling Operations – Based on the RFD, there could be 44 new natural gas wells (in addition to the 12 existing wells) drilled on federal minerals in the Monument, most likely within the next 15 to 20 years. This would disturb 104 acres in addition to the 136 existing acres of soil for the construction of the well sites, access roads and pipelines. Rehabilitating parts of the well pads and pipelines during production would reduce soil disturbance to 28 acres. A long-term commitment of the soil resource on 28 acres would be required for access roads and facilities.

Soils would benefit by requiring minimal surface disturbance, the use of low-impact drilling technology, and developing multiple wells from one location. Fewer acres of bare soils would be exposed to raindrop impact, runoff and wind erosion. Sites and access roads would be avoided in areas where soil impacts could not be mitigated or effectively controlled and where reclamation activities would fail.

Access with no restrictions could result in soil rutting and compactions from vehicle and equipment movement during wet/moist soil conditions.

Based on the RFD, there is the potential for 174 feet of new access roads on slopes 30% and greater. These are not contiguous feet, rather a representation of cumulative segments of roads.

Production Facilities and Equipment – Pipelines allowed cross-country would disturb soils and the protective vegetation during installation. This would result in short-term (1 to 2 years) localized accelerated soil erosion. Design standards and mitigation measures would reduce the severity of the impacts to soils and require prompt revegetation of the disturbed areas. Soil conditions and site productivity could easily be returned with proper design, construction methods and reclamation practices.

Alternative C

Seismic – Soil disturbance would be confined to designated roads. Where exceptions could be granted for off-road

travel, soil compaction and rutting could occur in areas of operation; resulting in increased surface runoff and subsequent erosion. Impacts would be minimal because surface disturbance would require mitigation. Soils mitigation would include avoiding steep and very steep slopes with heavy equipment and avoiding operations during moist/wet soil conditions.

Drilling Operations – Based on the RFD, there could be 28 new natural gas wells (in addition to the 12 existing wells) drilled on federal minerals in the Monument, most likely within the next 15 to 20 years. This would disturb 56 acres in addition to the 136 existing acres of soil for the construction of the well sites, access roads and pipelines. Rehabilitating parts of the well pads and pipelines during production would reduce soil disturbance to 21 acres. A long-term commitment of the soil resource on 21 acres would be required for access roads and facilities.

As in Alternative B, soils would benefit by requiring minimal surface disturbance, the use of low impact drilling technology, and developing multiple wells from one location.

Restricting travel to the minimal vehicle needed for the job and possible timing restrictions could reduce the potential for soil rutting and compaction from vehicle and equipment movement during wet/moist conditions.

Based on the RFD, there is the potential for 1,542 feet of new access roads on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils. These are not contiguous feet, rather a representation of cumulative segments of roads. There would be no new access roads on slopes 40% and greater.

Production Facilities and Equipment – Requiring new pipelines to stay within existing disturbances or access roads would result in no additional soil disturbances. Soil disturbances and erosion would result from the construction and use of the access roads or disturbance area.

Pipelines authorized to deviate from existing disturbance corridors would disturb soils and the protective vegetation during installation. This would result in short-term (1 to 2 years) localized accelerated soil erosion. Design standards and mitigation measures would reduce the severity of the impacts to soils and require prompt re-vegetation of the disturbed areas. Soil conditions and site productivity could easily be returned with proper design, construction methods and reclamation practices.

Alternative D

Seismic – Soil disturbance would be confined to designated roads with no exceptions. Operations would not be allowed during moist/wet soil conditions.

Drilling Operations – Based on the RFD, there could be 13 new natural gas wells (in addition to the 12 existing wells) drilled on federal minerals in the Monument, most likely within the next 15 to 20 years. This would disturb 15 acres in addition to the 136 existing acres of soil for the construction of the well sites, access roads and pipelines. Rehabilitating parts of the well pads and pipelines during production would reduce soil disturbance to 16 acres. A long-term commitment of the soil resource on 16 acres would be required for access roads and facilities.

As in Alternative B, soils would benefit by requiring minimal surface disturbance, the use of low-impact drilling technology, and developing multiple wells from one location.

Restricting travel to the minimal vehicle needed for the job and possible timing restrictions could reduce the potential for soil rutting and compaction from vehicle and equipment movement during wet/moist conditions.

Production Facilities and Equipment – Requiring new pipelines to stay within existing disturbances or access roads would result in no additional soil disturbances from pipeline installation. Soil disturbances and erosion would be a result of the construction and use of the access roads or disturbance area.

Alternative E

Seismic – Soil disturbance would be confined to designated roads with no exceptions. Operations would not be allowed during moist/wet soil conditions.

Drilling Operations – Based on the RFD, there would be no new natural gas wells drilled on federal minerals in the Monument. The existing 12 wells currently disturb 136 acres of soil from the well sites, access roads and pipelines. Rehabilitating parts of the well pads and pipelines during production would reduce soil disturbance to 14 acres. There would be a long-term commitment of the soil resource on 14 acres required for access roads and facilities.

As in Alternative B, soils would benefit by requiring minimal surface disturbance, the use of low impact drilling technology, and developing multiple wells from one location.

Restricting travel to the minimal vehicle needed for the job and possible timing restrictions could reduce the potential for soil rutting and compaction from vehicle and equipment movement during wet/moist conditions.

Production Facilities and Equipment – Requiring new pipelines to stay within existing disturbances or access roads would result in no additional soil disturbances from pipeline installation. Soil disturbances and erosion would

be a result of the construction and use of the access roads or disturbance area.

Alternative F (Preferred Alternative)

Seismic—Soil disturbance would be confined to designated roads. Where exceptions are granted for off-road travel, soil compaction and rutting could occur in areas of operation; resulting in increased surface runoff and subsequent erosion. Impacts would be minimal because surface disturbance would be mitigated. Mitigation for soils would include avoiding steep and very steep slopes with heavy equipment and avoiding operations during moist/wet soil conditions.

Explosions from surface blasting would cause localized surface disturbance. Surface disturbances created, such as mounds or craters, would be restored to the original contour.

Drilling Operations—Based on the RFD, there could be 34 new natural gas wells (in addition to the 12 existing wells) drilled on federal minerals in the Monument, most likely within the next 15 to 20 years. This would disturb 73 acres in addition to the 136 existing acres of soil for the construction of the well sites, access roads and pipelines. Interim reclamation of areas not needed for production and operations would be initiated immediately after completion of construction. Rehabilitating parts of the well pads and pipelines during production would reduce soil disturbance to 24 acres. A long-term commitment of the soil resource on 24 acres would be required for access roads and facilities.

Soils would be stabilized by vegetative cover and accelerated erosion potential would be eliminated within 1 to 3 years following reclamation.

Soils would benefit by requiring minimal surface disturbance, the use of low-impact drilling technology, and developing multiple wells from one location. Fewer acres of bare soils would be exposed to raindrop impact, runoff and wind erosion. Sites and access roads would be avoided in areas where soil impacts could not be mitigated or effectively controlled and where reclamation activities would fail.

Restricting travel to the minimal vehicle needed for the job and possible timing restrictions could reduce the potential for soil rutting and compaction from vehicle and equipment movement during wet/moist conditions.

Based on the RFD, there is the potential for 935 feet of new access roads on slopes 30% and greater and on slopes 20% and greater with severely erosive and/or slumping soils. These are not contiguous feet, rather a representation of

cumulative segments of roads. There would be no new access roads on slopes 40% and greater.

Production Facilities and Equipment—Requiring new pipelines to stay within existing disturbances or access roads would result in no additional soil disturbances from pipeline installation. Soil disturbances and erosion would be a result of the construction and use of the access roads or disturbance area.

Pipelines authorized to deviate from existing disturbance corridors would disturb soils and the protective vegetation during installation. This would result in short-term (1 to 2 years) localized accelerated soil erosion. Design standards and mitigation measures would reduce the severity of the impacts to soils and require prompt re-vegetation of the disturbed areas. Soil conditions and site productivity can easily be returned with proper design, construction methods and reclamation practices.

Impacts to Soils from Access and Transportation

Introduction

As visitation increases, vehicular travel on roads could increase disturbances to soils; resulting in increased soil erosion, compaction, rutting and surface runoff. The severity of disturbance would depend upon soil conditions (wet/moist vs. dry/frozen), frequency, vehicle weight (lbs./sq. inch), tire width/tread, and driver type. Impacts would be greatest in areas of concentrated use that are not maintained or improved and would be mostly confined to the roadways. Compaction could occur to the extent that natural re-vegetation could not occur and some sort of mechanical treatment would be required. Vehicular travel during wet soil conditions could lead to rutting and creating alternative routes. Ruts provide a channel for concentrated flow to accelerate soil erosion. Rutting hazard is high due to low soil strength in the planning area.

BLM roads that are properly graded and maintained would provide for improved road conditions. This could result in decreased soil disturbances associated with creating parallel/braided roads and associated runoff and subsequent erosion.

Roads with poor design on steep slopes would be the most susceptible to erosion due to high surface runoff, compacted surfaces and lack of vegetative cover. Roads with poor design also have been identified as a major source and contributor of sediment.

Appropriate design standards that minimize surface runoff and subsequent soil erosion would be required for new roads. This would include avoiding severely erosive and

slumping hazard areas; fitting roads to the topography; locating roads on natural benches, stable and well-drained soils; and avoiding long, sustained, steep road grades (Appendix G).

Access

Alternatives A (Current Management) and B

Allowing the public on new resource roads for natural gas operations could increase the frequency and numbers of vehicles disturbing soils on those roads. There would be the potential for an increase in soil erosion, compaction and rutting over-and-beyond what could occur from the routine operations and maintenance of producing wells. Soil impacts would be minor because of required design standards that effectively control surface runoff and erosion on new roads.

Alternatives C, D, E, and F (Preferred Alternative)

Restricting public access on new resource roads for natural gas operations to specified areas and from all sensitive areas could reduce the frequency of soil disturbances. Soil disturbance would continue from routine operations and maintenance of producing wells.

BLM Road System

Alternative A (Current Management)

All existing BLM roads would be open, unless currently restricted by the West HiLine RMP, Judith-Valley-Phillips RMP, or completed watershed or activity plans. This could increase the number of vehicles traveling over and disturbing soils and vegetation; resulting in increased compaction, rutting and subsequent runoff and erosion. Soil impacts would be greatest under this alternative, as it would provide the most miles of open roads.

Open roads (or segments of roads) on soils with severe erosion susceptibility would require further investigation by the BLM to determine if mitigation and/or a higher level of maintenance would be needed to control erosion and/or increase stability.

Exceptions – Administrative use off road and on closed roads for the BLM, other federal, state and county agencies, lessees and permittees would not occur frequently enough, over the same route, to result in substantial accelerated soil erosion and the development of new roads. However, there is the potential for soil compaction and rutting if these actions occur during wet or moist soil conditions.

Motorized or mechanized vehicles would not be allowed to pull off designated routes for camping and would not create any soil impacts.

Alternative B

Open roads (or segments of roads) with severe erosion susceptibility would require further investigation by the BLM to determine if mitigation and/or a higher level of maintenance would be needed to control erosion and/or increase stability. Road design and maintenance would be evaluated. If necessary, the BLM may close or reroute (if possible) these roads/segments. This would protect soils, where erosion and slope stability are concerns.

Soils on closed roads would become productive once vegetation is returned (naturally or mechanically) and erosion is controlled.

Exceptions – Administrative use off road and on closed roads for the BLM, other federal, state and county agencies, lessees and permittees would not occur frequently enough, over the same route, to result in substantial accelerated soil erosion and the development of new roads. However, there is the potential for soil compaction and rutting if these actions occur during wet or moist soil conditions.

Allowing motorized or mechanized vehicles to pull off designated routes up to 300 feet for camping could result in new parallel tracks. This would depend on factors such as soil conditions (wet/moist vs. dry/frozen), frequency, and vehicle weight (lbs./sq. inch). In areas of concentrated use, soils could become compacted and rutted. Soil impacts would likely be less than 100 acres.

Alternative C

Open roads (or segments of roads) with severe erosion susceptibility would require further investigation by the BLM to determine if mitigation and/or a higher level of maintenance would be needed to control erosion and/or increase stability. Road design and maintenance would be evaluated. If necessary, the BLM may close or reroute (if possible) these roads/segments. This would result in protection to soils where erosion and slope stability are concerns.

Soils on closed roads would become productive once vegetation is returned (naturally or mechanically) and erosion is controlled.

Exceptions – Administrative use on closed roads for the BLM, other federal, state and county agencies would not occur frequently enough, over the same route, to result in substantial accelerated soil erosion and the development of new roads. Administrative use off road and on closed roads

by lessees and permittees would not occur frequently enough to result in substantial accelerated soil erosion and the development of new roads. However, there is the potential for soil compaction and rutting if these actions occur during wet or moist soil conditions.

Allowing motorized or mechanized vehicles to pull off designated routes up to 150 feet for camping could result in new parallel tracks. This would depend on factors such as soil conditions (wet/moist vs. dry/frozen), frequency, and vehicle weight (lbs./sq. inch). In areas of concentrated use, soils could become compacted and rutted. Soil impacts would likely be less than 50 acres.

Alternative D

Open roads (or segments of roads) with severe erosion susceptibility would require further investigation by the BLM to determine if mitigation and/or a higher level of maintenance would be needed to control erosion and/or increase stability. Road design and maintenance would be evaluated. If necessary, the BLM may close or reroute (if possible) these roads/segments which would protect soils where erosion and slope stability are concerns.

Soils on closed roads would become productive once vegetation is returned (naturally or mechanically) and erosion is controlled.

Exceptions – Administrative use off-road and on closed roads for the BLM, other federal, state and county agencies, lessees and permittees would have the same impacts as Alternatives A and B.

Allowing motorized or mechanized vehicles to pull off designated routes up to 10 feet for camping could result in new parallel tracks. This would depend on factors such as soil conditions (wet/moist vs. dry/frozen), frequency, and vehicle weight (lbs./sq. inch). In areas of concentrated use, soils could become compacted and rutted. Soil impacts would likely be less than 20 acres.

Alternative E

This alternative would create the fewest soil impacts as it would allow the fewest miles of open roads.

Open roads (or segments of roads) with severe erosion susceptibility would require further investigation by the BLM to determine if mitigation and/or a higher level of maintenance would be needed to control erosion and/or increase stability. Road design and maintenance would be evaluated. If necessary, the BLM may close or reroute (if possible) these roads/segments, which would protect soils where erosion and slope stability are concerns.

Soils on closed roads would become productive once vegetation is returned (naturally or mechanically) and erosion is controlled.

Exceptions – There would be no soil impacts from off-road travel associated with administrative use from the BLM, other federal, state and county agencies as it would not be allowed.

Restrictions for travel off road and on closed roads, during wet soil conditions, could be implemented on a case-by-case basis for lessees and permittees. This could reduce potential soil compaction, rutting and development of unauthorized alternate routes and roads.

Motorized or mechanized vehicles would not be allowed to pull off designated routes for camping and would not create any soil impacts

Alternative F (Preferred Alternative)

Open roads (or segments of roads) with severe erosion susceptibility would require further investigation by the BLM to determine if mitigation and/or a higher level of maintenance would be needed to control erosion and/or increase stability. Road design and maintenance would be evaluated. If necessary, the BLM may close or reroute (if possible) these roads/segments, which would protect soils where erosion and slope stability are concerns.

Soils on closed roads would become productive once vegetation is returned (naturally or mechanically) and erosion is controlled.

Exceptions – Administrative use off road and on closed roads for the BLM, other federal, state and county agencies, lessees and permittees would not occur frequently enough, over the same route, to result in substantial accelerated soil erosion and the development of new roads. However, there is the potential for soil compaction and rutting if these actions occur during wet or moist soil conditions.

Allowing motorized or mechanized vehicles to pull off designated routes up to 300 feet for camping could result in new parallel tracks. This would depend on factors such as soil conditions (wet/moist vs. dry/frozen), frequency, and vehicle weight (lbs./sq. inch). In areas of concentrated use, soils could become compacted and rutted. Soil impacts would likely be less than 100 acres.

There would be no soil impacts in the WSAs because motorized or mechanized vehicles would not be allowed to pull off designated routes for camping.

Aviation

Alternatives A (Current Management) and B

Soils would be susceptible to wind erosion where vegetative cover is removed and soils are bare. These impacts could occur on approximately 20 acres.

Alternative C

Soils would be susceptible to wind erosion where vegetative cover has been removed and soils are bare. These impacts could occur on approximately 14 acres.

Alternative D

Soils would be susceptible to wind erosion where vegetative cover has been removed and soils are bare. These impacts could occur on approximately 12 acres.

Alternative E

Once airstrips are revegetated (naturally or mechanically) impacts to soils would cease.

Alternative F (Preferred Alternative)

Soils could be susceptible to wind erosion where vegetative cover has been removed and soils are bare. These impacts could occur on approximately 12 acres.

Summary of Cumulative Impacts to Soils

Alternative A (Current Management)

The BLM's past, present and future objectives are to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion. All surface-disturbing activities would be subject to an onsite evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. This has resulted in an overall improvement in soil productivity and watershed health within the planning area. Soil improvements would continue under this alternative.

Surface-disturbing activities could contribute cumulatively to increased soil compaction, surface runoff and a subsequent increase in soil erosion and sedimentation. These activities could also decrease soil productivity throughout the planning area; however, surface-disturbing activities would require mitigation as described above. Direct and indirect activities that favor wildlife habitat, maintain or increase PFC in the uplands and riparian areas/wetlands, mitigate natural gas development, and road maintenance would protect soil resources and offset impacts. Guidance from BMPs, Standards for Rangeland Health and design

standards would be followed to minimize and mitigate soil impacts.

Within the next 15 to 20 years, an additional 56 wells could be drilled on federal leases in or within 1/2 mile of the Monument. This would result in 107 acres of soil disturbances. Interim reclamation would reduce this figure to 33 acres. Cumulatively, less than 1% of soils would be impacted from surface disturbance associated with natural gas development in the planning area.

Alternative B

The BLM's past, present and future objectives are to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion. All surface-disturbing activities would be subject to an onsite evaluation to develop mitigation to reduce erosion and soil compaction, and improve soil stability and salinity control. This has resulted in an overall improvement in soil productivity and watershed health within the planning area. The soil improvements would continue under this alternative.

Surface-disturbing activities could contribute cumulatively to increase soil compaction, surface runoff, and a subsequent increase in soil erosion and sedimentation and decreased soil productivity throughout the planning area; however, surface-disturbing activities would require mitigation as described above. Direct and indirect activities that favor wildlife habitat, maintain or increase PFC in the uplands and riparian areas/wetlands, mitigate natural gas development, and reroute or mitigate roads with severe erosion problems would protect soil resources and offset impacts. Guidance from BMPs, Standards for Rangeland Health and design standards would be followed to minimize and mitigate soil impacts.

Within the next 15 to 20 years, an additional 67 wells could be drilled on federal leases in or within 1/2 mile of the Monument. This would result in 144 acres of soil disturbances. Interim reclamation would reduce this figure to 39 acres. Cumulatively, less than 1% of soils would be impacted from surface disturbance associated with natural gas development in the planning area.

Alternative C

The BLM's past, present and future objectives are to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion. All surface-disturbing activities would be subject to an onsite evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. This has resulted in an overall improvement in soil productivity and watershed health within the planning area. The soil improvements would continue under this alternative.

Surface-disturbing activities could contribute cumulatively to increase soil compaction, surface runoff and a subsequent increase in soil erosion and sedimentation. These activities could also decrease soil productivity throughout the planning area; however, surface-disturbing activities would require mitigation as described above. Direct and indirect activities that favor wildlife habitat, maintain or increase PFC in the uplands and riparian areas/wetlands, mitigate natural gas development, and reroute or mitigate roads with severe erosion problems would protect soil resources and offset impacts. Guidance from BMPs, Standards for Rangeland Health and design standards would be followed to minimize and mitigate soil impacts.

Within the next 15 to 20 years, an additional 49 wells could be drilled on federal leases in or within 1/2 mile of the Monument. This would result in 92 acres of soil disturbances. Interim reclamation would reduce this figure to 31 acres. Cumulatively, less than 1% of soils would be impacted from surface disturbance associated with natural gas development in the planning area.

Alternative D

The BLM's past, present and future objectives are to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion. All surface-disturbing activities would be subject to an onsite evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. This has resulted in an overall improvement in soil productivity and watershed health within the planning area. The soil improvements would continue under this alternative.

Surface-disturbing activities, as described in this alternative and in the Impacts to Soils Common to All Alternatives section, could contribute cumulatively to increase soil compaction, surface runoff, and a subsequent increase in soil erosion and sedimentation. These activities also decrease soil productivity throughout the planning area; however, surface-disturbing activities would require mitigation as described above. Direct and indirect activities that favor wildlife habitat, maintain or increase PFC in the uplands and riparian areas/wetlands, mitigate natural gas development, and close most roads that do not serve a specific purpose would protect soil resources and offset impacts. Guidance from BMPs, Standards for Rangeland Health and design standards would be followed minimize and mitigate soil impacts.

Within the next 15 to 20 years, an additional 33 wells could be drilled on federal leases in or within 1/2 mile of the Monument. This would result in 50 acres of soil disturbances. Interim reclamation would reduce this to 25 acres. Cumulatively, less than 1% of soils would be impacted from surface disturbance associated with natural gas development in the planning area.

Alternative E

The BLM's past, present and future objectives are to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion. All surface-disturbing activities would be subject to an onsite evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. This has resulted in an overall improvement in soil productivity and watershed health within the planning area. The soil improvements would continue under this alternative.

Overall, this alternative would allow the fewest soil impacts because it is the most restrictive on surface-disturbing activities which could contribute cumulatively to increased soil compaction, surface runoff, and a subsequent increase in soil erosion and sedimentation. These activities could also decrease soil productivity throughout the planning area; however, surface-disturbing activities would require mitigation as described above. Direct and indirect activities that favor wildlife habitat, maintain or increase PFC in the uplands and riparian areas/wetlands, mitigate natural gas development, and close most roads would protect soil resources and offset impacts. Guidance from BMPs, Standards for Rangeland Health and design standards would be followed to minimize and mitigate soil impacts.

Within the next 15 to 20 years, an additional 18 wells could be drilled on federal leases in or within 1/2 mile of the Monument. This would result in 33 acres of soil disturbances. Interim reclamation would reduce this figure to 24 acres. Cumulatively, less than 1% of soils would be impacted from surface disturbance associated with natural gas development in the planning area.

Alternative F (Preferred Alternative)

The BLM's past, present and future objectives are to maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion. All surface-disturbing activities would be subject to an onsite evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. This has resulted in an overall improvement in soil productivity and watershed health within the planning area. The soil improvements would continue under this alternative.

Surface-disturbing activities, as described in this alternative and in the Impacts to Soils Common to All Alternatives section, could contribute cumulatively to increase soil compaction, surface runoff, and a subsequent increase in soil erosion and sedimentation. These activities could also decrease soil productivity throughout the planning area; however, surface-disturbing activities would require mitigation as described above. Direct and indirect activities that favor wildlife habitat, maintain or increase PFC in the uplands and riparian areas/wetlands, mitigate natural gas

development, and re-route or mitigate roads with severe erosion problems would protect soil resources and offset impacts. Guidance from BMPs, Standards for Rangeland Health and design standards would be followed to minimize and mitigate soil impacts.

Within the next 15 to 20 years, an additional 55 wells could be drilled on federal leases in or within 1/2 mile of the Monument. This would result in 109 acres of soil disturbances. Interim reclamation would reduce this figure to 34 acres. Cumulatively, less than 1% of soils would be impacted from surface disturbance associated with natural gas development in the planning area.

Vegetation – Native Plants

Impacts to Vegetation – Native Plants Common to All Alternatives

Fish and Wildlife

Management actions to accommodate wildlife call for maintaining the diversity of vegetation in species composition, cover and structure. These benefits to vegetation would be subtle and infrequent.

Actions to improve the quality and quantity of vegetation for upland birds encourage diversity in the composition and structure of vegetation communities. Vegetation treatments would be small-scale and emphasize creating diversity. Land treatments and controlled burns would change composition and structure of vegetation communities on the treatment area, but would not jeopardize overall vegetation and may lead to more productive vegetation in the short term. This occurs by removing old, mature and stagnated plants, removing plants that are shading out other plants, altering the balance of nutrients in the area and freeing up some nutrients, and providing sites for plants to grow earlier in the spring with less competition for moisture. It is also possible that vegetation treatments may cause a shift in use areas by livestock and wildlife which would reduce vegetation use in other areas.

Actions to protect shorelines at specific reservoirs would enhance vegetation community development around the reservoir, by allowing plants to become established and go through a complete life cycle in the season. The area impacted would vary depending on the number and size of the reservoirs. This action would provide some islands of vegetation but would not occur often, and overall would have little to no effect on vegetation.

Soils

Actions that maintain healthy soil conditions create good vegetation cover and diversity. Surface-disturbance activities could destroy vegetation and leave bare ground where invasive species would establish in the short term. Since mitigation for disturbances requires reclamation and establishment of suitable species, the long-term impacts on vegetation would be inconsequential.

Vegetation – Native Plants

With appropriate allocations (as established previously in watersheds or activity plans) vegetation to protect soil and plant health, vegetation composition, diversity, structure and productivity would be maintained. In addition, meeting the Standards for Rangeland Health would ensure maintaining healthy vegetation communities.

Water

Improving vegetation cover to reduce runoff and sedimentation goes hand-in-hand with healthy vegetation communities. This benefit would be subtle, but widespread over the entire Monument.

Livestock Grazing

Pursuing vegetation treatments (mechanical, chemical or burning) to meet management objectives would change vegetation composition, diversity, structure and/or productivity. Any vegetation treatment would receive further environmental analysis before implementation.

Recreation

Recreation activities have the potential to impact vegetation in localized areas where vehicles are parked, campsites are established, or recreational use livestock are being held. These impacts could be short-term trampling of vegetation, which could recover in a relatively short period. Extended use campsites, campfires and sites where recreational use livestock are tied or fed can lead to trampling of vegetation, surface disturbance, soil compaction and the introduction of invasive species. This impact would be localized and would not likely change vegetation communities. However, along the UMNWSR where available campsites are limited, the impact to the vegetation community could cause deterioration. These impacts would be mitigated by making alternative campsites available and educating the public in minimal impact camping techniques.

Fire

Any fire would have some impact on vegetation. The actual impact is highly variable and could be positive, benign, or

negative depending on the circumstances of the fire. Fire-related impacts include a change in vegetation composition, diversity, structure, cover and productivity. Hot season fires that have lots of fuel and burn slow and hot are likely to cause substantial changes in the vegetation community. Cool season fires that burn quickly and relatively cool in a mosaic pattern may increase diversity, composition and structure.

Short-term impacts are often quite different than long-term impacts.

On occasion, suppression activities such as using heavy equipment to construct bare-ground fire breaks, cause disturbance beyond those the fire could create.

Impacts to Vegetation – Native Plants from Health of the Land and Fire

Fish and Wildlife – Greater-Sage-Grouse

Alternative A (Current Management)

No additional impacts to vegetation would be anticipated.

Alternatives B, C, D, and E

Offsite water and adjusted grazing strategies would provide more rest and recovery for plants and improve grass and forb components of the vegetation. Protecting wet meadows would lead to better ground cover and a higher degree of diversity on specific sites.

Prescription burns could have varying effects on vegetation structure, diversity and productivity depending on the circumstances of the burn. There could also be a substantial difference in effect on a short-term versus long-term basis. In general, burns would reduce the cover provided by sagebrush species (on occasions to nearly 0% canopy cover) and set back successional levels and structure of vegetation. Burns would often lead to more homogeneous communities (reduced mosaic) in the short term, but in the long term can increase sharper community edges and a higher degree of mosaic than before the burn. Productivity in the grass and forb component of the plant community could increase for a year or two following the burn, but beyond 10 years the productivity often comes back to pre-burn levels if the same vegetation community redevelops.

Alternative F (Preferred Alternative)

Actions taken in the interest of sage-grouse would be favorable to vegetation because the emphasis would be on maintaining diversity in species composition, structure and

cover. The actual areas that would be impacted by this action would be relatively small and therefore would not represent a substantial change in vegetation. Reclamation of disturbed areas and restoration of sagebrush would be in the interest of healthy vegetation communities.

Fish and Wildlife – Black-Tailed Prairie Dogs

Alternative A (Current Management)

Numerous small black-tailed prairie dog towns could reduce vegetative structure to a single layer and diversity to a few low-growing species, often at low successional levels on the town site. They also could reduce available forage for other birds and mammals (including livestock). Black-tailed prairie dog towns may also become focal points for establishing invasive species. These effects could result in not meeting Standards for Rangeland Health (specifically Standard #1 – Upland Health). Prairie dog towns would generally establish and expand on relatively flat or rolling landscapes that are either grasslands or shrub lands. They would not become established on steep slopes or under tree/forest areas. It is problematic to predict or quantify the acreage of vegetation that might be impacted, since the causes are complicated by many factors. Prairie dog towns would not alter large acreages of vegetation in the Monument; however, there may be localized circumstances where prairie dog towns could overwhelm an area that is confined by topography (a river bottom terrace, narrow ridge, etc.) and lead to deterioration in rangeland health.

Alternatives B, C, and D

Black-tailed prairie dog towns would be controlled if the towns would impact other resources or cause an allotment to not meet Standards for Rangeland Health. These would only be localized effects and would be inconsequential on the scale of the Monument.

Alternative E

No measures would be implemented to control prairie dogs or expansion of their towns. Like Alternative A, this could have the impact of reducing vegetation composition, structure and productivity in the localized area. Prairie dog towns could potentially expand onto private land where control measures would likely not be effective since prairie dogs would continually reoccupy the private land from the BLM land where they are not being controlled. There could be a reduction in the productivity of the vegetation since forage would be consumed by the prairie dogs and not be available for watershed protection, livestock or wildlife. There could be some secondary influence (higher use levels) on vegetation away from prairie dog towns if livestock and other wildlife have to find substitute forage.

Alternative F (Preferred Alternative)

In spite of the appearance of loss of vegetation, some prairie dog town presence is within a natural range of variability on the larger landscape and would meet Standards for Rangeland Health. Actions to prevent prairie dog towns from adversely impacting other resources or Standards for Rangeland Health should mitigate the potential for prairie dog towns to become a serious negative impact. There would be a simplification of the vegetation community and a likely shift to earlier successional stages on prairie dog towns.

Vegetation

Alternative A (Current Management)

Current conditions would remain unchanged.

Alternatives B and C

Conversion of non-native vegetation communities to native communities would increase the diversity of plant species and restore a more natural vegetation character to the landscape. Depending on the method and implementation, species richness could increase several fold from pre-treatment monocultures. Productivity may increase slightly (likely less than 50%) because a variety of species have different growth requirements and the vegetation community can take advantage of variations in weather. Overall, this conversion could occur on less than 2,000 acres (including seeded pastures and previous reclamation projects that used non-natives). On the scale of the Monument this change in vegetation would not be measurable; however, on specific sites the change could be notable.

Resource reserve allotments would provide the opportunity to adjust use from other areas in the Monument and allow for grazing rest and recovery in other areas. This has the potential to provide flexibility in management of livestock grazing and improve the overall health and productivity of vegetation in the Monument.

Reclamation to native plant species would reduce the amount of bare ground and improve the diversity of vegetation. Allowing natural reclamation would be in the interest of vegetation on small scales where invasive species are not an issue. Reclamation would be required for gas well activity (less than 300 acres); road construction activity (less than 500 acres); and non-functional water development (less than 500 acres).

Alternative D

The impacts would be similar to Alternatives B and C, except for the amount of land (about 2,000 acres) restored to native vegetation. The increase in acreage where natives

would be re-established would not be significant on the scale of the Monument.

Resource reserve allotments would provide the opportunity to adjust use from other areas in the Monument and allow for grazing rest and recovery in other areas. This would provide flexibility in management of livestock grazing while improving the health and productivity of vegetation in the Monument.

Reclaiming native plants would reduce the amount of bare ground and improve the vegetation diversity. Allowing natural reclamation would be in the interest of vegetation on small scales where invasive species are not an issue. Reclamation would be required for gas well activity (less than 300 acres); road construction activity (less than 500 acres); and non-functional water development (less than 500 acres).

Alternative E

The impacts would be similar to Alternatives B and C, except for the difference in the acreage (about 2,000 acres) that would be restored to native vegetation. The increase in acreage where native plants would be re-established would not be significant on the scale of the Monument.

Foregoing the opportunity for resource reserve allotments would not have a direct effect on vegetation; however, it would forego the benefits of having the flexibility in management or an opportunity to improve vegetation on other BLM lands.

Reclaiming native plants would reduce bare ground and improve the diversity of vegetation and the resistance to invasive species. Allowing natural reclamation would be in the interest of vegetation on small scales where invasive species are not an issue. Reclamation would be required for gas well activity (less than 300 acres); road construction activity (less than 500 acres); and non-functional water development (less than 500 acres).

Alternative F (Preferred Alternative)

Emphasizing native perennial vegetation in riparian and upland areas would move vegetation communities toward meeting Standards for Rangeland Health. Limiting the use of non-native plants to special circumstances would not substantially detract from native vegetation communities and may protect native plants and/or facilitate recovery of native vegetation in other areas.

The Hay Coulee allotment would be designated a resource reserve allotment and would provide flexibility in managing livestock grazing. If other opportunities develop, additional resource reserve allotments could be established. Resource reserve allotments could create a favorable im-

pact on vegetation by providing opportunities to relieve pressure on other areas where conditions might not be favorable for vegetation, such as recovering from wildland fires or prescribed burning, recovery from reclamation efforts, revision of a grazing strategy, or drought circumstances.

Reclaiming non-functional reservoirs, pits and water developments could favor vegetation if the existing situation is conspicuously unnatural. If natural reclamation is occurring, creating a new disturbance with the intention of improving vegetation may actually be counterproductive to vegetation in the short term in that established plants could be destroyed, and more bare ground could be vulnerable to erosion and invasion of less desirable plants and it would take longer to recover. This concern could be mitigated in case-by-case circumstances.

Range Improvements

Alternative A (Current Management)

There would be no impacts beyond those analyzed in the watershed/activity plans listed in Chapter 3.

Alternatives B, C, D, and E

Depending on the specific goal of a water development project, impacts of the improvement could vary. If health of the land is a goal, the project could be combined with another action (such as refining a grazing strategy to adjust the grazing pattern, season or duration of use) and the combination of these actions would influence vegetation. The benefits would be allowing rest and recovery of plants or reduction of use levels in some areas. However, if a water development provides livestock water and no refined grazing strategy is implemented, it is likely that vegetation could be overused in the area of the new development because plants could be grazed too frequently and heavily and vigor could be suppressed. Fences would conform to a specification that would effectively control livestock while minimizing the risk to wildlife and scenic character. An inadequate fence that would not control livestock does not contribute to maintaining vegetation health because livestock would be grazing in areas intended for rest or regrowth.

Alternative F (Preferred Alternative)

Fences installed or adjusted as part of management strategies to improve vegetation and rangeland health would improve livestock management and reduce grazing impacts, which would provide for rest/recovery of plants and controlled use levels. Some surface disturbance and impact to vegetation could occur during construction activities. However, these would be short-term impacts and could be

mitigated with seasonal limitations and minimal-disturbance construction methods and equipment.

Fences installed solely for administrative purposes that do not consider topography have the potential of creating unnatural circumstances where livestock and/or wildlife could concentrate and abuse vegetation while leaving other areas unused.

Water developments that emphasize meeting Standards for Rangeland Health and other management objectives would improve vegetation composition, structure and productivity. However, if water is developed solely for livestock without concurrent management adjustments to control use in the area of the development, there would be some potential for abuse of vegetation and/or shifting of use by livestock and wildlife to other areas.

Forest Products

Alternatives A (Current Management), B, C, and D

Some removal of forest products could occur either by personal use or commercial activities. Impacts on vegetation would vary depending on the product removed and the amount of surface disturbance involved. Christmas tree cutting and incidental fire wood cutting would have notably different impacts to the vegetation than would the harvest of growing trees for lumber. Since wood product resources are limited in the Monument, there is no expectation of frequent or large-scale wood product harvesting activity. Mitigating measures that specify where, how much and by what means wood products are removed would minimize impacts and, in some instances, could be implemented to improve vegetation health.

Alternative E

Not allowing wood product harvesting could lead to some fuel buildup in localized areas and a risk of more serious wildland fires. Overall, wood cutting in itself would not have a substantial impact on vegetation.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, C, and D.

Fire

Alternative A (Current Management)

Wildland fires would be appropriately suppressed considering the natural role of fire. This policy could create a wide range of impacts on vegetation, depending on the circum-

stances of the fire. If a wildland fire burns hot, it could result in nearly a complete loss of vegetation for the current year and redevelopment of new communities in successive years at different successional levels. This circumstance could also establish invasive species. However, if wildland fires burn in patchy or mosaic patterns, they would create localized impacts on vegetation structure and composition on the site, but would not impact overall vegetation composition or productivity on a watershed or landscape scale. Using heavy equipment to scrape out fire lines could destroy vegetation; however, mitigation measures to reclaim the disturbed area should allow for recovery of the vegetation in the long term.

Prescribed fires based on public safety and resources would reduce woody and fine fuels (both living and dead) and could cause a shift in the structure, composition and age class of vegetation, but is not likely to alter the health of vegetation communities as long as the burns are conducted in a manner that avoids weed invasions.

Impacts to vegetation would vary substantially depending on the circumstances and conditions of wildland fire. The impacts of prescribed fires would be analyzed in site-specific NEPA analyses and burn plans for each project.

Alternative B

Wildland fires would be suppressed aggressively using all available methods. If not prudently applied, this policy could jeopardize vegetation by using heavy equipment in suppression activities. Damage to vegetation from heavy equipment could cause long-term impacts to plants and soil and would require reclamation activities to recover original vegetation cover. Because prescribed fires are only proposed for WSAs, there is some potential that wildland fires could be more damaging to vegetation in the short and mid-term (0-10 years).

Prescribed fires would not be allowed in the Wild and Scenic River, North and South Monument FMUs. Burning could be pursued in WSAs for the purpose of public safety and resources. Prescribed fire would not directly impact vegetation. An impact of not allowing prescribed fire could be the buildup of hazardous fuels which could lead to higher risk of more serious wildland fires. Such wildland fires could simplify vegetation structure, composition and production. In addition, since the suppression strategy toward wildland fires in this alternative would allow all available means of suppression, there would be a risk of damage to vegetation from suppression activities.

Aggressive suppression with minimal prescription burning could lead to larger, more damaging wildland fires as well as suppression activities that could impact vegetation structure, composition and productivity. Impacts would be

highly variable depending on circumstances and reclamation activities that would follow.

Alternative C

Wildland fires would be suppressed aggressively using all available methods with the exception that within WSAs, appropriate suppression response would consider the natural role of fire. This alternative would create the same impacts as Alternative B in the three FMUs, and for WSAs the impact would be the same as Alternative A.

Prescription burning would be allowed in the Wild and Scenic River FMU. In the other FMUs, burning would be pursued only for the purpose of public safety and resources. The impacts from prescribed fires would be the same as Alternative A.

Alternative D

Wildland fire in the Wild and Scenic FMU would be suppressed aggressively using all available methods and in all other FMUs would be suppressed in consideration of natural role of fire. In the Wild and Scenic FMU, the impacts would be the same as for Alternative B. For all other FMUs, the impacts would be the same as Alternative A.

Prescription burning would be pursued in the interest of public safety/resources and in consideration of the natural role of fire. Prescribed fire would alter seral stages of some vegetation communities, including structure and composition on a site basis, but probably not on a watershed or landscape scale. The desired reduction of hazardous fuels may reduce the risk of large serious fires that could substantially alter and simplify the vegetation structure, composition and productivity.

This alternative would allow adaptive management strategies that should mitigate impacts of fire and suppression activity and minimize direct and indirect impacts to vegetation.

Alternative E

Wildland fire would be suppressed in consideration of the natural role of fire and in some identified areas would be allowed to burn within certain parameters. This policy could contribute to notable shifts in vegetation structure, composition and productivity on a site basis, but the impact would probably not be apparent on the scale of the watershed or landscape.

Prescription burning would be pursued for public safety and resource purposes and in consideration of the natural role of fire. The impacts to vegetation would be the same as Alternative D.

Alternative F (Preferred Alternative)

Fire could create a wide range of impacts on vegetation, depending on the circumstance of the fire. If a wildland fire burns hot, it could contribute to the nearly complete loss of vegetation for the current year and redevelopment of new communities in successive years at different successional levels. This circumstance could also contribute to establishing invasive species. However, if wildland fires burn in patchy or mosaic patterns they would create localized impacts on vegetation structure and composition. Such a fire could simplify the community on a site basis, but probably not impact the total vegetation composition or productivity on a watershed or landscape scale.

Suppression activities (including off-road travel and construction of fire breaks) could create the potential for impacting vegetation and soil through trampling, compacting and the scraping off of established plants, creating opportunities for establishment of invasive species. These adverse impacts would be mitigated with reclamation activities following the fire.

Prescribed fires would be pursued in the interest of public safety/resources and in consideration of the natural role of fire. Prescribed fires could alter seral stages of some vegetation communities, including structure and composition on a site basis, but probably not on a watershed or landscape scale. The reduction of hazardous fuels may reduce the risk of large, serious fires that could substantially alter and simplify the vegetation structure, composition and productivity.

Rights-of-Way

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Limiting the disturbance area to existing corridors would minimize new damage to vegetation. As with any disturbance activity, there would be some risk of invasive species establishment.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

There would be no differences in impacts to vegetation, provided vegetation management tools remain available to control invasive/noxious weeds and manage fire fuel.

Impacts to Vegetation – Native Plants from Visitor Use, Services and Infrastructure

Alternative A (Current Management)

Large groups would create the potential for trampling vegetation and creating short-term vegetation impacts in the localized area. There would probably be no long-term impacts if the activity is infrequent, of short duration and does not involve surface disturbance.

Expanding groups of campers would create the potential for jeopardizing vegetation in localized areas around camps. The impact would be a trampling of vegetation and soil, causing a shift in vegetation to more invasive species that can survive trampling and compacted soils. The total area being jeopardized would be small, but the area damage would be in high visibility locations and cumulatively may appear as if substantial areas are being damaged.

Camping Facilities - Dispersed camping (Level 4) would create the potential for leading to higher use areas and could lead to localized vegetation being damaged in popular areas. Trampling vegetation and compacting soils could lead to the decreased health of plants and their replacement by less desirable vegetation. On a localized level, the impact would be small (<1 acre) and the total impact area at current use levels probably would not exceed 100 acres.

Campfires could lead to the localized loss of vegetation and an increased risk of wildland fires where campfires are built on vegetation, although the individual campfire location would be quite small (<1 sq. yard).

Alternative B

Large groups would create the short-term potential for trampling vegetation in the localized area, but probably would not create long-term impacts if the activity is infrequent, of short duration and does not involve surface disturbance.

Providing more Level 1, 2 and 3 sites would jeopardize vegetation at those localized sites, but may curtail damage to vegetation at alternative use areas.

Camping Facilities - Providing more Level 1, 2 and 3 sites would jeopardize vegetation at those localized sites. It could also mitigate damage to vegetation at alternative use areas, assuming use is adjusted to developed areas.

Campfires could lead to the localized loss of vegetation and an increased risk of wildland fires where campfires are built on vegetation, although the individual campfire location would be quite small (<1 sq. yard).

Alternative C

Large groups would create the short-term potential for trampling out vegetation in the localized area, but would not create long-term impacts if the activity is infrequent, of short duration and does not involve surface disturbance.

Not restricting camping on islands would create a potential for jeopardizing vegetation on the island, in that vegetation may be trampled hard enough and repeatedly enough it may not mature annually or successional. Resistance to invasive species could decline.

Camping Facilities – The impacts would be similar to those in Alternative B plus the potential of jeopardizing vegetation in recreational stock handling sites. Vegetation trampling, soil compaction and the potential for introducing non-native plants through hay and feeds would be possible at these sites. However, since recreational stock would be confined to the site, the end result may be less than if stock is handled at dispersed areas by makeshift means.

Requiring camp stoves, fire pans or fire mats would curtail damage to vegetation and reduce the risk of wildland fires.

Alternatives D and E

Large groups would create the potential for trampling vegetation, which would be a short-term impact in the localized area. It is not likely this would create long-term impacts if the activity is infrequent, of short duration and does not involve surface disturbance.

Providing more Level 1, 2 and 3 sites would jeopardize vegetation at those localized sites, but may curtail damage to vegetation at alternative use areas.

Camping Facilities - With fewer Level 1 and 2 sites, overuse in Level 3 and 4 sites could jeopardize vegetation and Standards for Rangeland Health in those sites. The acreage would not likely be extensive, but would be concentrated in easily accessible areas.

Requiring camp stoves, fire pans or fire mats would curtail damage to vegetation and reduce the risk of wildland fires.

Alternative F (Preferred Alternative)

Large groups would create the potential for trampling vegetation, which would be a short-term impact in the localized area. It is not likely this would create long-term impacts if the activity is infrequent, of short duration, and does not involve surface disturbance.

Trampled vegetation and soil could alter vegetation cover, composition and structure in campsites. These circumstances could also lead to establishing invasive species.

Depending on the amount of use occurring at campsites, vegetation recovery from year to year may not be possible. Fire rings at campsites would scar soils and damage vegetation at the campfire site and trampling would occur around the campfire. These impacts would be localized and though notable at camp sites, on the overall scale of the landscape, would be minor.

Mitigating measures that determine when action would be taken to protect the site integrity should protect vegetation.

Camping Facilities - Level 1 and 2 sites would be developed to endure heavy recreational use, and maintaining the native plant community may not be a priority. The actual acres of native vegetation lost would be small (likely <2 acres) at each developed area. Though vegetation would be lost, these areas would sustain use that might otherwise be more damaging to vegetation outside of the developed site.

Requiring camp stoves, fire pans or fire mats would curtail damage to vegetation and reduce the risk of wildland fires.

Impacts to Vegetation – Native Plants from Natural Gas Exploration and Development

Alternative A (Current Management)

Seismic – Techniques that involve surface use (roads/off-road travel/blasting, etc.) could trample, consume or otherwise damage vegetation for the short term, but long-term impacts would not be measurable.

Drilling Operations – Well sites would impact vegetation during installation and operation. As spacing requirements are reduced (more sites per section) more acres of vegetation are impacted. Drilling operations and roads would impact vegetation by crushing plants and disturbing the surface. These would be short-term impacts, but could become long-term if reclamation measures are not enforced or if road and trails use is not limited. Gas well sites and service activities would impact vegetation for the life of the well. However, this loss of vegetation on the scale of the Monument would not be substantial, other than being a potential source for invasive species establishment or expansion. Less than 40 acres of vegetation would be impacted.

Not requiring low impact drilling could lead to surface disturbance and short-term disruption of vegetation communities. However, there would still be less than 40 acres disturbance with conventional operating procedures in the Monument.

Production Facilities and Equipment – Surface disturbance during installation of pipelines would impact vegetation by crushing plants and compacting soil. The short-term

impacts would be evident; however, long-term impacts would be negligible. This impact could be mitigated with appropriate reclamation requirements.

Alternative B

Seismic – Techniques that involve surface use (roads/off-road travel/blasting, etc.) could trample, consume or otherwise damage vegetation in the short term, but long-term impacts would not be measurable.

Drilling Operations – Well sites would impact vegetation during installation and operation. As spacing requirements are reduced (more sites per section) more acres of vegetation would be impacted. Drilling operations and roads would impact vegetation by crushing plants and disturbing the surface. These would be short-term impacts, but could become long term if reclamation measures are not enforced or if road and trail use is not limited. Gas well sites and service activities would impact vegetation for the life of the well, but this loss of vegetation on the scale of the Monument would not be substantial, other than being a potential source for invasive species establishment or expansion. Less than 40 acres of vegetation would be impacted.

Requiring low impact drilling methods would minimize impacts to vegetation. Drilling operations impact vegetation, but minimizing the footprint of the activity and enforcing reclamation standards would make the overall impact on vegetation inconsequential.

Production Facilities and Equipment – Surface disturbance during installation of pipelines would impact vegetation by crushing plants and compacting soil. The short-term impacts would be evident; however, long-term impacts would be negligible. This impact could be mitigated with appropriate reclamation requirements.

Alternatives C and D

Seismic – No impact to vegetation would be anticipated since activities would be limited to existing roads and no blasting would be allowed.

Drilling Operations – Well sites would impact vegetation during installation and operation. As spacing requirements are reduced (more sites per section) more acres of vegetation would be impacted. Drilling operations and roads would impact vegetation by crushing plants and disturbing the surface. These would be short-term impacts, but could become long-term if reclamation measures are not enforced or if road and trail use would not be limited. Gas well sites and service activities would impact vegetation for the life of the well, but this loss of vegetation on the scale of the Monument would not be substantial, other than being a potential source for invasive species establishment or ex-

pansion. Less than 40 acres of vegetation would be impacted.

Requiring low impact drilling methods would minimize impacts to vegetation. Drilling operations impact vegetation, but minimizing the footprint of the activity and enforcing reclamation standards would make the overall impact on vegetation inconsequential.

Production Facilities and Equipment – Restricting pipelines to areas of existing disturbance (roads and existing pipelines) would minimize new impacts to vegetation. This impact could be mitigated with appropriate reclamation requirements.

Alternative E

Seismic – No impact to vegetation would be anticipated since activities would be limited to existing roads and no blasting would be allowed.

Drilling Operations – Reducing the number of wells approved per section would decrease the impact on vegetation at well sites and access routes to well sites. The total impacts would be inconsequential on the scale of the Monument.

Requiring low impact drilling methods would minimize impacts to vegetation. Drilling operations impact vegetation, but minimizing the footprint of the activity and enforcing reclamation standards would make the overall impact on vegetation inconsequential.

Production Facilities and Equipment – Restricting pipelines to areas of existing disturbance (roads and existing pipelines) would minimize new impacts to vegetation. This impact could be mitigated with appropriate reclamation requirements.

Alternative F (Preferred Alternative)

Seismic – Techniques that involve surface use (roads/off-road travel/blasting, etc.) could trample, consume or otherwise damage vegetation in the short term, but long-term impacts would not be measurable.

Drilling Operations – Drilling operations and roads would impact vegetation by crushing plants and disturbing the surface. These would be short-term impacts, but could become long-term if reclamation measures are not enforced or if road and trail use is not limited. Gas well sites and service activities would impact vegetation for the life of the well, but this loss of vegetation on the scale of the Monument would not be substantial, other than being a potential source for invasive species establishment or expansion.

Requiring low impact drilling methods would minimize impacts to vegetation. Drilling operations impact vegetation, but minimizing the footprint of the activity and enforcing reclamation standards would make the overall impact on vegetation inconsequential.

Production Facilities and Equipment – Restricting pipelines to areas of existing disturbance (roads and existing pipelines) areas would minimize new impacts to vegetation. This impact could be mitigated with appropriate reclamation requirements.

Impacts to Vegetation – Native Plants from Access and Transportation

Access

Alternatives A (Current Management) and B

Leaving new roads open to public use would increase the loss of vegetation on the road. The total impact area would be estimated at less than 10 acres.

Alternatives C and D

Limiting public use of resource roads accessing gas facilities would minimize damage to vegetation.

Alternative E

Not allowing public use of new resource roads to gas facilities would minimize damage to vegetation.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C and D.

BLM Road System

Alternative A (Current Management)

The vegetation in the wheel tracks of roads that were not specifically constructed but are tracks worn by use (resource roads) would be damaged by trampling or soil compaction to the point that plants could not grow. Between the tracks, vegetation would be limited in height since vehicle undercarriages would break off the top growth.

Vegetation would be removed for the width of constructed roads (collector and local). In some construction circumstances, vegetation along the edge of a road could be more productive since water would run off the road and be available for plant growth. The degree of impact varies substantially, depending on frequency of use and conditions under which the roads would be used and maintained. Use during wet weather conditions could lead to rutting and

tearing plants out. Also during wet weather, alternative routes next to the intended road could develop, further jeopardizing vegetation.

Vegetation on existing resource roads is not currently developing to potential where vehicle tracks trample plants and compact soils (1 mile of road 14 feet wide equals 1.7 acres). Currently, 457 miles of open resource roads translates into about 775 acres of vegetation impacted by roads. The resource roads that would be seasonally or permanently closed should have some opportunity to recover.

Road Classification and Maintenance – Maintenance activity on roads would disrupt vegetation that might otherwise grow in or next to roads. The extent of this impact would depend upon maintenance methods and circumstances.

Exceptions – Vehicle travel off road and on closed resource roads for administrative use would create the potential for trampling vegetation and compacting soil. The extent of this impact would depend upon the frequency and circumstances of use.

Not allowing recreationists to pull off roads to establish camp sites would reduce impacts to vegetation.

Alternative B

Leaving resource roads open would create the potential for jeopardizing vegetation in the track of the road.

New roads would increase the loss of vegetation. However, a new road in a better location than an old road could reduce impacts to vegetation and soils.

Road Classification and Maintenance – In this alternative, 395 miles of the current resource roads (545 miles) would remain open and there would be no change on approximately 670 acres of vegetation occupied by these roads. For those resource roads that are permanently or seasonally closed, vegetation would have the opportunity to recover on approximately 250 acres.

Exceptions – Vehicle travel off road and on closed resource roads for administrative use would create the potential for trampling vegetation and compacting soil. The extent of the impact would depend upon the frequency and circumstances of use.

Allowing pull off and camping up to 300 feet from a road would create the potential for impacting vegetation if this driving would create new tracks. This could produce noticeable impacts in conspicuous areas along regularly used roads; however, the total impacted area would be less than 100 acres.

Alternative C

Leaving resource roads open would create the potential for jeopardizing vegetation in the track of the road.

New roads would increase the loss of vegetation. However, a new road in a better location than an old road could reduce impacts to vegetation and soils.

Road Classification and Maintenance – In this alternative, 358 miles of the current resource roads (545 miles) would remain open and there would be no change on approximately 600 acres of vegetation occupied by these roads. For those resource roads that are permanently or seasonally closed, vegetation would have the opportunity to recover on approximately 300 acres.

Exceptions – Minimized off-road travel for administrative use would reduce impacts to vegetation.

Allowing pull off and camping up to 150 feet from a road would create the potential for impacting vegetation if this driving would create new tracks. This could produce noticeable impacts in conspicuous areas along regularly use roads; however, the total impacted area would be less than 50 acres.

Alternative D

Leaving resource roads open would create the potential for jeopardizing vegetation on the track of the road.

Reducing the number and miles of open roads and parallel/redundant roads would be a positive impact on vegetation, to the extent the roads revegetated.

Road Classification and Maintenance – In this alternative, 238 miles of the current resource roads (545 miles) would remain open and there would be no change on approximately 400 acres of vegetation occupied by these roads. For those resource roads that are permanently or seasonally closed, vegetation would have the opportunity to recover on approximately 520 acres.

Exceptions – Curtailing administrative use on closed roads and off-road would allow vegetation to remain intact and/or redevelop on previously used tracks.

Allowing pull off and camping up to 10 feet from a road would reduce the potential for vegetation impacts.

Alternative E

Leaving resource roads open would create the potential for jeopardizing vegetation on the track of the road.

Reducing the number and miles of open roads and parallel/redundant roads would be a positive impact on vegetation, to the extent the roads revegetated.

Road Classification and Maintenance – In this alternative, 52 miles of the current resource roads (545 miles) would remain open and there would be no change on approximately 90 acres of vegetation occupied by these roads. For those resource roads that are permanently or seasonally closed, vegetation would have the opportunity to recover on approximately 800 acres.

Exceptions – Curtailing administrative use on closed roads and off-road would allow vegetation to remain intact and/or redevelop on previously used tracks.

Not allowing pull off camp sites would reduce vegetation impacts.

Alternative F (Preferred Alternative)

On roads that were not specifically constructed, vegetation would be damaged in the wheel tracks by trampling or soil compaction. Vegetation would be limited in height since vehicle undercarriages would break off the top growth between tracks.

On constructed roads, vegetation would be removed for the width of the construction. In some construction circumstances, vegetation along the edge of a road could be more productive since water would run off the road and be available for plant growth. The degree of impact would vary substantially, depending on frequency of use and the conditions under which the roads are used and maintained. Use during wet weather can lead to rutting and tearing plants out. Also, during wet weather alternative routes next to the intended road can develop and further jeopardize vegetation.

Road Classification and Maintenance – In this alternative, 146 miles of the current resource roads (545 miles) would remain open and there would be no change on approximately 250 acres of vegetation occupied by these roads. For the remaining resource roads that would be closed or seasonally restricted, approximately 650 acres would have some opportunity to recover. Where practical, allowing roads to reclaim naturally would favor native vegetation communities provided invasive species do not become established. Where natural reclamation is not possible, site preparation and seeding would create short-term vegetative damage. However, long-term natural vegetation communities should develop.

Exceptions – Vehicle travel off road and on closed resource roads for administrative use would create the potential for trampling vegetation and compacting soil. The extent of

this impact would depend upon the frequency and circumstances of use.

Allowing pull off and camping up to 300 feet from a road would create the potential for impacting vegetation if this driving develops new tracks. This would probably create noticeable impacts in conspicuous areas along regularly used roads; however, the total impacted area would be less than 100 acres.

Aviation

Alternative A (Current Management)

There would be no new vegetative impacts from the existing airstrips.

Alternative B

Maintenance work could impact vegetation on the 10 landing strips. If done with equipment, it would create more vegetative and soil disruption than if done by hand. Each airstrip occupies 1.5-2 acres; therefore, impacts would occur on less than 20 acres.

Alternative C

Maintenance work could impact vegetation on the seven landing strips. If done with equipment, it would create more vegetative and soil disruption than if done by hand. Each airstrip occupies 1.5-2 acres; therefore, impacts would occur on less than 14 acres.

Alternative D

Maintenance work could impact vegetation on the six landing strips. If done with equipment, it would create more vegetative and soil disruption than if done by hand. Each airstrip occupies 1.5-2 acres; therefore, impacts would occur on less than 12 acres.

Alternative E

Airstrips would be allowed to revegetate naturally and there would be no additional impacts to vegetation.

Alternative F (Preferred Alternative)

Maintenance work could impact vegetation on the six landing strips. If done with equipment, it would create more vegetative and soil disruption than if done by hand. Each airstrip occupies 1.5-2 acres; therefore, impacts would occur on less than 12 acres.

Summary of Cumulative Impacts to Vegetation – Native Plants

After basic site characteristics (soils, exposure topography, etc.), weather, livestock grazing, wildlife use and fire (prescribed and wildland) would be the primary influences on vegetation. These influences have already been addressed in previous plans and would be common to all alternatives. Livestock grazing is controlled through terms and conditions incorporated in grazing permits/leases, including requirements to meet Standards for Rangeland Health. These terms and conditions were established through the development of watershed and/or other activity plans. If resource management goals and objectives are not being met as indicated through monitoring efforts, grazing authorizations would be adjusted to ensure vegetation is not jeopardized.

Alternative A (Current Management)

Localized vegetation disturbances would occur as a function of gas production activity, roads and recreation activities. These activities would likely impact less than 1,000 acres (in terms of total vegetation removal or damage to the health of plants).

Alternative B

Conversion of some non-native vegetation communities to native could occur. Mitigation measures would be adequate to ensure the impacts to vegetation are minimal (less than 1,000 acres).

Alternatives C and D

Specific actions to manage sage-grouse habitat by conserving native vegetation communities would facilitate restoration in some native communities, albeit small in acreage.

Alternative E

Minimizing roads and natural gas surface-disturbing activities would create minimum impacts to vegetation. Allowing prairie dogs to expand without controls could jeopardize vegetation in the localized area of the prairie dog town and could force livestock use into areas that previously have been lightly grazed.

Alternative F (Preferred Alternative)

Localized vegetation disturbances would occur as a function of gas production activity, roads and recreation activities. These activities would likely impact less than 1,000 acres (in terms of total vegetation removal or damage to the health of vegetation).

Conversion of some non-native vegetation communities to native could occur. Mitigation measures would be adequate to ensure the impacts to vegetation are minimal (less than 1,000 acres).

Specific actions to favor sage-grouse by conserving native vegetation communities would facilitate restoration of some native communities, albeit small in acreage.

Minimizing off-road and administrative travel and other surface-disturbing activities would create minor impacts to vegetation, which should recover in a season or two.

Vegetation - Riparian

Impacts to Vegetation – Riparian Common to All Alternatives

Each alternative is directed toward protecting the objects for which the Monument was designated. Riparian habitat is one of those objects. All of the alternatives would have an overall benefit to riparian vegetation. However, the greatest positive impact to riparian vegetation would occur from implementing the management prescriptions contained in the watershed/activity plans carried forward in this Draft RMP/EIS (Table 2.2). These watershed/activity plans would impact all riparian areas in all allotments within the Monument. The allotments meeting Standards for Rangeland Health would see no change in their current management. Those not meeting standards would follow management prescriptions toward meeting the standards. Implementing and enforcing standards and guidelines would enhance riparian habitat, reduce erosion/sedimentation, slow runoff, increase sedimentation on banks and floodplains, and increase bank storage in riparian areas.

Regardless of which alternative is selected, the BLM will comply with all applicable laws and regulations concerning riparian resources. Mitigating measures for resource protection would be applied to all authorized actions.

Impacts to Vegetation – Riparian from Health of the Land and Fire

Alternatives A (Current Management), B, and C

The BLM, at its discretion, would restore or establish native riparian vegetation in areas considered to have the potential to support this vegetation. Examples would include planting shrubs under existing, mature cottonwood stands, or planting cottonwoods and willows on newly developed point bars. This practice could introduce plants not native to the area if the plants are not identified before planting. Also, planted areas never achieve a natural appearance regardless of the steps taken.

Alternatives D and E

The BLM would plant only native riparian species at Level 1, 2 or 3 sites. This practice could introduce non-native species if care is not taken to identify each plant before placement. Limiting planting activities to campgrounds would preserve the natural appearance of those areas outside of campgrounds that establish on their own.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, and C.

Impacts to Vegetation – Riparian from Visitor Use, Services and Infrastructure

Alternative A

Opportunities for Boaters – The number of people floating the river or camping in riparian areas would not be limited. The riparian areas in and closely adjacent to campsites would continue to be degraded by trampling, firewood gathering and harvesting woody vegetation.

Camping Facilities – This alternative would allow the development of additional Level 1, 2, or 3 sites. Additional damage to riparian areas from increased floater/camper use would spread to areas outside existing campsites.

Alternatives B and C

Opportunities for Boaters – The number of people floating the river or camping in riparian areas would not be limited. Under Alternatives C and F standards and indicators would be used as a means of reducing impacts including closing campgrounds. However, closing some campsites without limiting the number of floaters only shifts the use to other campsites. The riparian areas in and closely adjacent to campsites would continue to be degraded by trampling, firewood gathering, and harvesting woody vegetation.

Camping Facilities – If the number of floaters on the Missouri River continues to increase, impacts to riparian resources would continue to increase. Past management practices such as upstream dam operations and continual hot season grazing over the last 70 years have resulted in a severe loss of two age classes (saplings and poles) of cottonwoods, willows, green ash, and box elder from riparian areas, especially along the Missouri River. The lack of replacement trees means floaters and campers in the near future will have to rely on artificial shelters for shade for an extended period of time (30 to 40 years). Also, the understory of shrubs, forbs and grasses underneath mature cottonwood stands has been severely altered from the natural succession (Kudray, et al, 2004). These alternatives would

allow for developing additional Level 1, 2, or 3 sites where needed to address increasing use demands and would offer the most potential for camper/floater impacts to be confined to specific sites, rather than spread among numerous riparian areas.

Alternative D

Opportunities for Boaters – The number of floaters and campers in the White Cliffs area could be limited if the standards and indicators are exceeded. The remaining campsites would close if standards and indicators are exceeded, but the floaters/campers would have the option to use other campsites not yet exceeding standards and indicators. The impacts would shift from one campsite to another.

Camping Facilities – This alternative would allow the development of additional Level 2 sites in the recreational sections of the Missouri River. It would not allow the development of new Level 1 sites.

Alternative E

Opportunities for Boaters – Limiting the number of floaters/campers per year would offer the greatest protection to riparian vegetation of any of the alternatives, if the floater/camper numbers were reduced to a pre-1997 level.

Camping Facilities – This alternative would not allow the development of additional Level 1, 2, or 3 sites. Additional damage to riparian areas from increased floater/camper use would spread to areas outside existing campsites.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives B and C.

Impacts to Vegetation – Riparian from Natural Gas Exploration and Development

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

The BLM would create streamside management zones for oil and gas operations in all the alternatives. Existing laws and regulations that currently protect riparian resources would continue to be enforced. While the acres affected by riparian oil and gas lease stipulations or conditions of approval varies by alternative, the impacts to riparian resources would be similar for all alternatives. Overall, the impacts would be negligible.

Impacts to Vegetation – Riparian from Access and Transportation

Alternative A (Current Management)

Leaving existing roads open would continue to negatively impact riparian resources at crossings and where roads closely parallel stream channels. The fact that the roads already exist means the impacts prevent riparian regeneration rather than degrading existing vegetation.

Alternatives B, C, D, E, and F (Preferred Alternative)

The closure of roads in riparian areas would allow the regeneration of riparian vegetation in the disturbed areas.

Summary of Cumulative Impacts to Vegetation - Riparian

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

The construction and operation of dams on the Missouri River has a dramatic impact on the flow regime of the river and has reduced the regeneration of woody riparian species, especially cottonwoods and willows (Hansen, 1989, Scott and Auble, 1998, Scott and Auble, 2002). Livestock grazing has also impacted riparian regeneration, but can be partially mitigated by the management prescriptions contained in the Decisions Common to All Alternatives section of Chapter 2. The impacts to riparian regeneration from dams and livestock grazing would persist in both the short and long terms. Campers would continue to degrade riparian resources in small, localized areas at campsites. This degradation would persist into the long term. Planting native species in campgrounds would eventually result in more overstory species like cottonwood and green ash. Understory species, especially native shrubs and grasses, would continue to decline due to human impacts. Once the shrub understory has been eliminated, an understory dominated by introduced herbaceous species persists. The prospect of the site returning to a natural shrub-dominated understory is lost.

Vegetation – Noxious and Invasive Plants

Impacts to Vegetation – Noxious and Invasive Plants Common to All Alternatives

Air Quality

Mitigation measures are already in place to address wind movement of sprayed herbicides for noxious and invasive

plant control. These mitigation measures are derived from state law, local management plans and the herbicide label. Temporary degradation to air quality may occur in the instance where prescribed fire is used as a management tool for invasive and noxious plants.

Cultural Resources

Cultural resources have little impact to noxious and invasive plants. However, should a significant cultural site be discovered, travel to the site and the associated disturbance may bring new noxious and invasive plants into the Monument and/or serve to move these plants to new locations within the Monument. These infestations may then threaten the cultural resource or certain plant populations of importance.

Fish and Wildlife

By managing and improving forage quality and quantity through wildlife and livestock management, the potential introduction and spread of noxious or invasive plants would be reduced by minimizing disturbance and available safe sites for undesirable plant establishment.

Vegetation – Noxious and Invasive Plants

By continuing to use the Guidelines for Integrated Weed Management (BLM 2001b), populations of noxious and invasive plants would be contained to the area along the Missouri River where natural processes of flooding and ice jamming would continue to spread and move these plants along the river. Noxious and invasive plant infestations throughout the Monument would be aggressively treated using integrated weed management principles. Cooperative management efforts would also impact infestations by allowing the BLM to work with other affected interests in addressing entire infestations without administrative boundaries.

Recreation

Noxious and invasive plants would be impacted by most recreational activities in the Monument. The movement of people, their pets and equipment would always present the potential for introduction and spread of these plants. This would be unavoidable, but ways to reduce the risk are addressed in the Guidelines for Integrated Weed Management (BLM 2001b).

Fire

Any fire (prescribed or wildland) would provide a window of opportunity for noxious and invasive plants and other undesired plant species and communities to colonize and dominate the area affected by the fire. In some cases this cannot be avoided due to the invasive plant materials and

site-specific conditions present in a given area. Fire could be used as a pre-treatment on invasive and noxious plant species to open up decadent material and allow the treatment to better target new growth.

Impacts to Vegetation – Noxious and Invasive Plants from Health of the Land and Fire

Alternative A (Current Management)

Protecting riparian habitat would help areas resist invasion from unwanted invasive and noxious plants. As existing habitat continues to age without replenishment, invasion of noxious plants is inevitable.

Natural reclamation would eventually occur on disturbed sites, but the plant species that fill in the disturbance may not be natural to the area. In some instances, invasive and noxious plants may be present and a significant component of the disturbed area if left unchecked. In many instances, however, there is no seed source and natural reclamation would be feasible and the most cost-effective method, as long as other issues such as erosion are mitigated.

Alternatives B and C

Long-term restoration and protection of riparian habitat would help riparian systems resist invasion from unwanted invasive and noxious plants. Restoration practices may actually increase risk of invasion and potentially impact the short-term outcome of the restoration. Riparian areas are a common introduction site, but healthy systems would deter colonization and establishment of new invasions.

Resource reserve allotments could help reduce unwanted impacts due to drought, misuse and range improvement projects which would allow invasive and noxious plants to colonize.

Any restoration practices would be mitigated and monitored for the introduction of invasive and noxious weeds as most treatments required by the restoration process would create some disturbance.

Any rehabilitation, with or without a non-native plant component, would need to ensure that noxious and invasive plants are not a component or contaminant in the seed being used.

Natural reclamation would eventually occur on disturbed sites, but the plant species that fill in the disturbance may not be natural to the area. In some instances, invasive and noxious plants may be present and a significant component of the disturbed area if left unchecked. In many instances, however, there is no seed source and natural reclamation

would be feasible and the most cost-effective method, as long as other issues such as erosion are mitigated.

The use of non-native vegetation would pose some risk to the environment as all non-native species have a genetic potential to become invasive at some point after establishment.

When used in restoration, any given non-native species would have the potential to dominate other planted and present vegetation.

Non-native species may be effectively used to prepare sites for reintroduction of late seral grasses and forbs given the right conditions.

Alternative D

Long-term restoration and protection of riparian habitat would help riparian systems resist invasion from unwanted invasive and noxious plants. Restoration practices may actually increase risk of invasion and potentially affect the short-term outcome of the restoration. Riparian areas are common introduction sites, but healthy systems would deter colonization and establishment of new invasions.

Resource reserve allotments could help reduce unwanted impacts due to drought, misuse and range improvement projects which would allow invasive and noxious plants to colonize.

Any restoration practices would be mitigated and monitored for the introduction of invasive and noxious weeds as most treatments required by the restoration process would create some disturbance.

Any rehabilitation with or without a non-native plant component would need to ensure that noxious and invasive plants are not a component or contaminant in the seed being used.

This alternative sets goals for full restoration of a functioning system as close to the pre-disturbance conditions as possible. This may not be realistic goal in some areas and treatments used to meet this goal may actually introduce invasive and noxious weeds into an area.

The use of non-native vegetation would pose some risk to the environment as all non-native species have a genetic potential to become invasive at some point after establishment.

When used in restoration, any given non-native species would have the potential to dominate other planted and present vegetation.

Non-native species may be effectively used to prepare sites for reintroduction of late seral grasses and forbs given the right conditions.

Alternative E

Protecting riparian habitat would help areas resist invasion from unwanted invasive and noxious plants. As existing habitat continues to age without replenishment, invasion of noxious plants is inevitable.

This alternative sets goals for full restoration of a functioning system as close to the pre-disturbance conditions as possible. This may not be realistic goal in some areas and treatments used to meet this goal may actually introduce invasive and noxious weeds into an area.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives B and C.

Impacts to Vegetation – Noxious and Invasive Plants from Visitor Use, Services and Infrastructure

Upper Missouri River SRMA

Alternatives A (Current Management) and B

Recreation User Fees – Any additional resources provided by the return of recreational use fees for invasive and noxious plant management would increase the BLM's ability to meet program goals.

Opportunities for Boaters – The larger the group, the more potential there would be for increased disturbance and the introduction of undesired plant seed from outside the Monument, and from site to site within the Monument.

Motorized Watercraft – These alternatives would provide the necessary access to infestations to comply with the management prescribed by the 2001 Guidelines for Integrated Weed Management developed for the Monument.

Alternative C

Recreation User Fees – Any additional resources provided by the return of recreational use fees for invasive and noxious plant management would increase the BLM's ability to meet program goals.

Opportunities for Boaters – The larger the group, the more potential there would be for increased disturbance and the introduction of undesired plant seed from outside the Monument, and from site to site within the Monument.

Motorized Watercraft – Upstream travel would be necessary to complete the objectives of the 2001 Guidelines for Integrated Weed Management development for the Monument. Herbicide applications, biological control activity, and other treatment types require certain weather and environmental conditions to be effectively implemented. By limiting the available days for upstream travel in the wild and scenic segments from June 15 to September 15, this alternative could significantly reduce what could be done in available windows of opportunity when managing invasive and noxious plants along 89 miles of the Missouri River. Scientists have estimated that for each year an infestation is not managed after the initial treatment, the infestation gains, on average, the growth and expansion equivalent to 3 years of non-treatment. Given this information, this alternative would not allow for the proper management of invasive and noxious plants and the BLM would not meet the goals set forth in the weed management plan or meet expectations from county governments, the Montana Department of Agriculture, and private landowners.

Alternative D

Recreation User Fees – Any additional resources provided by the return of recreational use fees for invasive and noxious plant management would increase the BLM's ability to meet program goals.

Opportunities for Boaters – The larger the group, the more potential there would be for increased disturbance and the introduction of undesired plant seed from outside the Monument, and from site to site within the Monument.

Motorized Watercraft – Upstream travel would be necessary to complete the objectives of the 2001 Guidelines for Integrated Weed Management development for the Monument. Herbicide applications, biological control activity, and other treatment types require certain weather and environmental conditions to be effectively implemented. By limiting administrative travel to downstream only during the seasonal restriction, this alternative could significantly reduce what could be done in available windows of opportunity when managing invasive and noxious plants along 89 miles of the Missouri River. Scientists have estimated that for each year an infestation is not managed after the initial treatment, the infestation gains, on average, the growth and expansion equivalent to 3 years of non-treatment. Given this information, this alternative would not allow for the proper management of invasive and noxious plants and the BLM would not meet the goals set forth in the weed management plan or meet expectations from county governments, the Montana Department of Agriculture, and private landowners.

Alternative E

Recreation User Fees – There would be no additional resources provided by the return of recreational use fees for invasive and noxious plant management.

Opportunities for Boaters – The larger the group, the more potential there would be for increased disturbance and the introduction of undesired plant seed from outside the Monument, and from site to site within the Monument.

Motorized Watercraft – Upstream travel would be necessary to complete the objectives of the 2001 Guidelines for Integrated Weed Management development for the Monument. Herbicide applications, biological control activity, and other treatment types would require certain weather and environmental conditions to be effectively implemented. This alternative would significantly reduce what could be done in available windows of opportunity when managing invasive and noxious plants along 149 miles of the Missouri River. Scientists have estimated that for each year an infestation is not managed after the initial treatment, the infestation gains, on average, the growth and expansion equivalent to 3 years of non-treatment. Given this information, these alternatives would not allow for the proper management of invasive and noxious plants and the BLM would not meet the goals set forth in the weed management plan or meet expectations from county governments, the Montana Department of Agriculture, and private landowners.

Alternative F (Preferred Alternative)

The impacts would be similar to Alternatives A and B if uniform procedures for administrative travel do not preclude upstream travel during available windows of opportunity.

Impacts to Vegetation – Noxious and Invasive Plants from Natural Gas Exploration and Development

Alternative A (Current Management)

Seismic – Many seismic operations could cause soil disturbance and allow the introduction and colonization of invasive and noxious plants.

Drilling Operations – Standard operating procedures would allow sufficient disturbance for undesired vegetation, invasive and noxious plants to colonize a well site. Reclamation would be more difficult with this alternative.

Roads are known pathways for the immigration and emigration of invasive and noxious plants. By not restricting administrative use roads to that purpose, the risk of new

invasions of undesirable plant species would be greater as the potential source for undesired species would become regional rather than local.

Alternative B

Seismic – Many seismic operations could cause soil disturbance which would allow the introduction and colonization of invasive and noxious plants.

Drilling Operations – Low impact drilling would lessen the amount of disturbance on a site, however, equipment may be contaminated with weed seed which needs very little disturbance to start a new infestation.

Roads are known pathways for the immigration and emigration of invasive and noxious plants. By not restricting administrative use roads to that purpose, the risk of new invasions of undesirable plant species would be greater as the potential source for undesired species would become regional rather than local.

Alternatives C, D, and E

Seismic – The main disturbance-causing seismic activities would be limited, which would reduce the potential introduction and spread of invasive and noxious plants.

Drilling Operations – Low impact drilling would lessen the amount of disturbance on a site, however, equipment may be contaminated with weed seeds which need very little disturbance to start a new infestation.

The minimal vehicle needed for the job would still pose some risk of invasive and noxious plant introduction. The reduced traffic and lighter vehicles would, in most cases, decrease the potential disturbance for invasive plant material to occupy.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C, D, and E.

Impacts to Vegetation – Noxious and Invasive Plants from Access and Transportation

Access

Alternative A (Current Management)

New resource roads for natural gas operations would be open to the risk of invasive plants being brought in not only by companies, but also by the general public.

Alternatives B, C, D, E, and F (Preferred Alternative)

Limiting or restricting the use of new resource roads for natural gas operations or road segments may reduce the potential introduction of invasive plants.

BLM Road System

Alternative A (Current Management)

Road System Criteria – By not closing a resource road, at least temporarily, should a highly invasive plant be detected would increase the plant's ability to move along the road system and eventually spread to impact other resources.

Road Classification and Maintenance – Allowing roads to reclaim naturally may encourage noxious and invasive weeds. If an invasive or undesired plant community is already along a closed road, the probability of one or more of these species claiming the road would be increased.

Alternative B

A limited number of open roads would decrease the range of potential spread to the open roads.

Road System Criteria – By not closing a resource road, at least temporarily, should a highly invasive plant be detected would increase the plant's ability to move along the road system and eventually move out to impact other resources.

Road Classification and Maintenance – Allowing roads to reclaim naturally may encourage noxious and invasive weeds. If an invasive or undesired plant community is already along a closed road, the probability of one or more of these species claiming the road would be increased.

Alternative C

A limited number of open roads would decrease the range of potential spread to the open roads.

Road System Criteria – Allowing temporary closure and/or reroutes in highly infested areas would help contain potential threats posed by invasive and/or noxious plants. Closing certain portions of roads may not be practical and would need to be considered on a site-specific basis.

Given the current conditions in the Monument (having very few infestations near roads), permanent road closures would only be necessary should a highly invasive, high priority weed be detected in abundance.

Road Classification and Maintenance – Allowing roads to reclaim naturally may encourage noxious and invasive weeds. If an invasive or undesired plant community is

already along a closed road, the probability of one or more of these species claiming the road would be increased.

Alternatives D and E

A limited number of open roads would decrease the range of potential spread to the open roads.

Road System Criteria – Allowing temporary closure and/or reroutes in highly infested areas would help contain potential threats posed by invasive and/or noxious plants. Closing certain portions of roads may not be practical and would need to be considered on a site-specific basis.

Given the current conditions in the Monument (having very few infestations near roads), permanent road closures would only be necessary should a highly invasive, high priority weed be detected in abundance.

Road Classification and Maintenance – These alternatives would actively deter the establishment of invasive and noxious plants.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternative C.

Summary of Cumulative Impacts to Vegetation – Noxious and Invasive Plants

Alternatives A (Current Management) and B

The management of invasive and noxious plants would continue as prescribed by the 2001 Guidelines for Integrated Weed Management. Invasive and noxious plants would continue to be treated aggressively using integrated management principles as resources allow. This should result in a significant decline in the amount and distribution of invasive and noxious plant populations in the next 10 to 20 years.

Other activities and resource uses would continue the risk of introducing and moving invasive and noxious plant material to and within the Monument. These activities are unavoidable, but the risk could be reduced through proper mitigation and education of public land users. New introductions, when found, would be aggressively managed according to the management plan.

Alternatives C, D, and E

The risk of new introductions of invasive and noxious plants and movement within the Monument would be mitigated to the extent possible. Other than natural causes such as wildlife, flooding, and ice scour, invasive species would have limited opportunity to colonize. These alterna-

tives would not allow the proper management of invasive and noxious plants along the Missouri River and the BLM would not meet its goals set forth in the weed management plan.

These alternatives decrease the risk of new introductions of invasive and noxious plants, but limit the management practices needed to continue aggressive treatment of infestations not accessible by land. These infestations could be allowed to grow unchecked and would provide a perpetual seed bank for those species to continue to colonize within the Monument.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A and B.

Visual Resources

Impacts to Visual Resources from Health of the Land and Fire

Visual Resource Management (VRM)

Alternative A (Current Management)

VRM Class I – No change as 16% of the Monument remains under the constraints of the strictest visual category (preservation of current landscape values). For the 61,700 VRM Class I (preservation of the existing visual character of the Monument landscape), any surface-disturbing activities plus semi-permanent and permanent facilities would require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of preserving the existing visual character of the Monument landscape (Table 4.14).

VRM Class II, III, and IV – No change as 84% of the Monument remains under the protection of these other three categories. For any of the 313,300 acres of BLM land under VRM Class II (retention of the existing visual character of the Monument landscape), VRM Class III (partial retention of the existing visual character of the Monument landscape), and VRM Class IV (modification of the existing visual character of the Monument landscape), surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives.

<p style="text-align: center;">Table 4.14 Visual Resource Management Class Designations (acres)</p>						
VRM Class	Alternative A (Current Management)	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F (Preferred Alternative)
Class I	61,700	111,480	111,480	111,480	111,480	111,480
Class II	118,800	44,520	161,560	263,520	263,520	161,560
Class III	8,200	105,000	101,960	0	0	24,770
Class IV	186,300	114,000	0	0	0	77,190

Alternative B

Under this alternative, the effect would be a greater amount of BLM land (30%) under the constraints of the most restrictive component for the protection of the scenic landscape values. The VRM Class II acreage drops 20%, the Class III acreage increases 26%, and the Class IV landscape category decreases 30% (Table 4.14).

There would be the possibility of modification to the existing visual landscape on Class III & IV lands, which would account for 58% of the Monument.

VRM Class I – To comply with BLM policy for visual resources in the six WSAs, there would be a 14 % increase for VRM Class I acreage under Alternative B. The 111,480 acres which accounts for 30% of Monument includes the WSAs, the wild segments of the UMNWSR, and the Bodmer landscape sites along the Missouri River. Any surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives.

VRM Class II - There would be a decrease of 74,280 acres in the VRM Class II category.

VRM Class III and IV – For any of the 219,000 acres under these two VRM classes surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives.

Alternative C

The VRM Class IV land in the uplands would be designated at higher levels of protection for the visual landscape values (Table 4.14). Under this alternative, there would be no BLM land under VRM Class IV. Acreage would increase in VRM Class I to 30% and in VRM Class II to 43%. The subsequent increase (11%) in the VRM Class II acreage

would provide a potential improvement for the protection of one of the Proclamation's objects. An impact would be additional BLM land in the uplands (25%) that would be designated at higher levels of protection for the visual landscape values (Table 4.14).

VRM Class I – The VRM Class I acreage would increase to 30%. For the 111,480 acres in VRM Class I, the visual contrast from proposed projects would be reduced by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape.

VRM Class II and III – The VRM Class II acreage would increase to 43% and VRM Class III would increase to 27%. For the 263,520 acres in VRM Class II and III, surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives.

Alternative D

Under this alternative, there would be no BLM land under both VRM Class III and Class IV visual management categories. The acres under VRM Class I would increase to 111,480 (30%). Another impact would be an increase in the number of BLM acres (70%) that would require stricter visual resource stipulations to meet the desired standards for VRM Class II.

VRM Class I – Surface-disturbing activities would be prohibited on some of the 111,480 acres of VRM Class I land. An additional 46,480 acres could be off limits to any new development.

VRM Class II – For the 263,520 acres in VRM Class II, the visual contrast from proposed projects would be reduced by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape.

Alternative E

The land with VRM Class III and IV ratings would be designated as VRM Class II (Table 4.14). The VRM Class I acreage would remain the same as under Alternative C, but the VRM Class II acreage would increase by 46%. Any surface-disturbing projects would have to meet stricter visual resource standards.

VRM Class I – Surface-disturbing activities may be prohibited on some of the 111,480 acres of VRM Class I land. An additional 46,480 acres could be off limits to any new development.

VRM Class II – Surface-disturbing activities may be prohibited in some of the VRM Class II areas (263,520 acres). Any of the 375,000 acres in the Monument could be off limits to surface-disturbing activities.

Alternative F (Preferred Alternative)

Under this alternative, there would be an increase (25% or 92,540 acres) in the most restrictive visual management categories (VRM Class I and II). The impact would be that 73% of the Monument (273,040 acres) would be under more stringent visual standards compared to the 48% currently designated under Alternative A.

All four VRM classes would be represented on BLM land but VRM Class III and Class IV designations would be at significant lower acreages (Table 4.14).

Any surface-disturbing projects/proposals located on BLM land would require a visual contrast rating be completed, no matter what the type of VRM class. This type of documentation formally becomes a part of the site specific NEPA analysis.

A total of 111,480 acres (30%) would be designated as VRM Class I, an increase of 14%. The VRM Class II acreage would total 161,560 acres (43%), an increase of 11%. The VRM Class III acreage would total 24,770 acres

(7%), which would be an increase of 5%. The VRM Class IV acreage would total 77,190 acres (20%), a 30% decrease from the existing situation.

VRM Class I – A total of 30% of the Monument may not be authorized for surface-disturbing activities.

VRM Class II, III, and IV – The visual contrast on 70% of the Monument would be reduced by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape. Surface-disturbing activities plus semi-permanent and permanent facilities would be allowed if they met these criteria.

Impacts to Visual Resources from Natural Gas Exploration and Development

Alternatives A (Current Management) and B

VRM Class I – For the 1,478 acres of oil and gas leases in VRM Class I (Table 4.15), any surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives. Based on the RFD, there is the potential for no natural gas wells in VRM Class I under Alternative A and one well under Alternative B.

VRM Class II, III, and IV – For the 41,327 acres of oil and gas leases in VRM Class II, III, and IV (Table 4.15), surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives. Based on the RFD, there is the potential for 35 natural gas wells in VRM Class II, III and IV under Alternative A (20 wells in VRM Class II and no wells in VRM Class III and 15 wells in Class IV). Under Alternative B there is the potential for 43 wells (23 wells in VRM Class II and no wells in VRM Class III and 20 wells in Class IV).

Table 4.15
Visual Resource Management Classes within the Existing Oil and Gas Leases
Alternatives A (Current Management) and B

	<i>Visual Resource Management Class</i>			
	<i>VRM Class I (acres)</i>	<i>VRM Class II (acres)</i>	<i>VRM Class III (acres)</i>	<i>VRM Class IV (acres)</i>
West HiLine Leases	92	3,789	0	6,447
Non-West HiLine Leases	1,386	16,470	0	14,621
Total	1,478	20,259	0	21,068

Alternative C

VRM Class I – For the 2,936 acres of oil and gas leases in VRM Class I (Table 4.16), the visual contrast would be reduced in the existing characteristic landscape by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape. Based on the RFD, there is the potential for one natural gas well in VRM Class I.

VRM Class II and III – For the 39,869 acres of oil and gas leases in VRM Class II and III (Table 4.16), surface-disturbing activities plus semi-permanent and permanent facilities may require special design including location, painting, and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives. Based on the RFD, there is the potential for 27 natural gas wells these areas (21 wells in VRM Class II and six wells in VRM Class III).

Alternative D

VRM Class I – Surface-disturbing activities may be prohibited on the 2,936 acres of oil and gas leases in VRM Class I (Table 4.17). Based on the RFD, there is the potential for no natural gas wells in VRM Class I.

VRM Class II – For the 39,869 of oil and gas leases in VRM Class II (Table 4.17), the visual contrast would be reduced in the existing characteristic landscape by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape. Based on the RFD, there is the potential for 13 natural gas wells in VRM Class II.

Alternative E

VRM Class I – Surface-disturbing activities may be prohibited on the 2,936 acres of oil and gas leases in VRM Class I (Table 4.17). Based on the RFD, there is the potential for no natural gas wells in VRM Class I.

VRM Class II – For the 39,870 acres of oil and gas leases in VRM Class II (Table 4.17), surface-disturbing activities may be prohibited. Based on the RFD, there is the potential for no natural gas wells in VRM Class II.

Alternative F (Preferred Alternative)

VRM Class I – Surface-disturbing activities may be prohibited on the 2,936 acres of oil and gas leases in VRM Class I (Table 4.18). Based on the RFD, there is the potential for no natural gas wells in VRM Class I.

Table 4.16 Visual Resource Management Classes within the Existing Oil and Gas Leases Alternative C			
	Visual Resource Management Class		
	VRM Class I (acres)	VRM Class II (acres)	VRM Class III (acres)
West HiLine Leases	108	7,438	2,783
Non-West HiLine Leases	2,828	25,137	4,512
Total	2,936	32,575	7,294

Table 4.17 Visual Resource Management Classes within the Existing Oil and Gas Leases Alternatives D and E		
	Visual Resource Management Class	
	VRM Class I (acres)	VRM Class II (acres)
West HiLine Leases	108	10,220
Non-West HiLine Leases	2,828	29,649
Total	2,936	39,869

VRM Class II, III, and IV – For the 39,869 acres of oil and gas leases in VRM Class II, III, and IV (Table 4.18), the visual contrast would be reduced by utilizing proper site selection; reducing soil and vegetative disturbance; choice of color; and over time, returning the disturbed area to a seamless, natural landscape. Based on the RFD, there is the potential for 34 natural gas wells in VRM Class II, III, and IV areas (24 wells in VRM Class II, three wells in VRM Class III, and seven wells in VRM Class IV).

Summary of Cumulative Impacts to Visual Resources

Alternative A (Current Management)

Overall, there would be the potential for minor visual impacts on 61,700 acres of which 2 % could be related to natural gas activity. Any surface-disturbing activities and placement of facilities within VRM Class I areas would require special design stipulations to meet the visual preservation objectives in addition to the standard criteria.

Visual impacts could occur on potentially 313,300 acres of which 13% could be related to natural gas activity.

Alternative B

There would be the potential for minor visual impacts on 111,480 acres of which 1 % could be related to natural gas activity. Any surface-disturbing activities and placement of facilities within VRM Class I areas would require special design stipulations to meet the visual preservation objectives in addition to the standard criteria.

Visual impacts could occur on potentially 263,520 acres of which 16% could be related to natural gas activity.

Alternative C

For this alternative, there would be the potential for minor visual impacts on 111,480 acres of which 3% could be related to natural gas activity. Any surface-disturbing ac-

tivities and placement of facilities within VRM Class I areas would require special design stipulations to meet the visual preservation objectives in addition to the standard criteria.

Visual impacts could occur on potentially 263,520 acres of which 15 % could be related to natural gas activity.

Under this alternative, there is an overall shift to stricter visual requirements to meet the objectives of preservation, retention, and partial retention of the existing visual character of the Monument landscape. The modification Class IV criteria are no longer applicable for 50% of the BLM land.

Alternative D

The visual impacts would be similar Alternative C.

This alternative would represent a greater shift yet to stricter visual requirements for surface-disturbing activities and the placement of facilities. Any impacts to the visual resource must meet the preservation and retention objectives of the existing visual character of the Monument landscape. The lesser stringent partial retention VRM Class III and modification VRM Class IV criteria are no longer applicable for 52% of the BLM land.

Alternative E

The visual impacts would be similar Alternative C.

This alternative would be the most restrictive for surface-disturbing activities and placement of facilities to meet visual standards for the Monument. A surface-disturbing activity or the placement of a facility on any of the 375,000 acres of BLM land may be prohibited or denied if it fails to meet the visual objectives of VRM Class I or II.

Alternative F (Preferred Alternative)

For this alternative, there would be the potential for none or minor visual impacts on 111,480 acres of BLM land, which

Table 4.18
Visual Resource Management Classes within the Existing Oil and Gas Leases
Alternative F (Preferred Alternative)

	<i>Visual Resource Management Class</i>			
	<i>VRM Class I (acres)</i>	<i>VRM Class II (acres)</i>	<i>VRM Class III (acres)</i>	<i>VRM Class IV (acres)</i>
West HiLine Leases	108	7,438	1,565	1,218
Non-West HiLine Leases	2,828	25,139	2,520	1,990
Total	2,936	32,577	4,085	3,208

3% could be related to natural gas activity. Any surface-disturbing activities and placement of facilities within VRM Class I areas would require special design stipulations to meet the visual preservation objectives in addition to the standard criteria.

Under VRM Class II acreage (161,560 acres) there would be the potential for minor visual impacts of which 20% could be attributed to natural gas activity.

For the 24,770 acres under VRM Class III, there could be visual impacts with 16% of that acreage potentially attributed to natural gas activity.

The remaining 77,190 acres of BLM land with a VRM Class IV category may have visual impacts including the 4 % associated with natural gas activities.

The four VRM classes would be represented, but at different percentages than currently exist. A majority of the Monument (73%) would be designated as VRM Class I or Class II. This would represent a 25% increase in the acreage meeting the intent of the visual quality objectives.

Water

Impacts to Water Common to All Alternatives

All the allotments in the Monument have been assessed for compliance with the rangeland standards and guidelines through watershed plans. Those allotments not meeting standards have had management prescriptions written that will allow them to meet or make significant progress toward meeting standards. The majority of these prescriptions have been implemented. The remainder will be implemented in the near future as funding allows.

None of the alternatives discussed in this document would have a measurable impact on ground water, water rights, or listed water quality impaired streams.

Impacts to Water from Health of the Land and Fire

Both natural and prescribed fires impact water resources. The bare ground following a fire increases erosion and sedimentation, degrades water quality and decreases infiltration and ground water recharge. These impacts would be temporary, lasting 2-4 years until the burned areas revegetate.

Alternatives A (Current Management) and B

Aggressive suppression and minimal prescribed fires could lead to excessive fuel build-up and potentially large, catastrophic fires, which have the potential to create greater impacts to water resources than the other alternatives.

Alternative C

Prescribed fires to reduce the potential of large, catastrophic fires would produce fewer impacts to water resources than Alternatives A and B.

Alternatives D and E

The proposed fire management in these alternatives would result in fewer impacts to water resources than the other alternatives.

Managing Monument lands to sustain or improve wildlife habitat would result in increased ground cover from plants and litter, with better plant diversity and density. This serves to improve water resources as plants tend to trap sediment, increase infiltration and ground water recharge, and improve water quality. Both alternatives would result in a positive benefit to water resources.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives D and E.

Impacts to Water from Visitor Use, Services and Infrastructure

Human wastes entering the Missouri River from overland flow across dispersed campsites could result in degraded water quality. The degradation is slight and probably not measurable with the current level of visitor use. As the level of visitor use increases, the magnitude of the impact increases. Improved infrastructure (more toilet facilities) and the portable toilet requirement would reverse this trend.

Alternative A (Current Management)

No additional facilities would be proposed to meet increased visitor use. If visitor use increases, the magnitude of degraded water quality would be greatest in this alternative.

Alternatives B and C

Increased facilities would be allowed throughout the UMNWSR if funding is available. Potentially, either of these alternatives would offer the greatest protection to water quality of the six alternatives.

Alternative D

Increased infrastructure would be allowed only in certain segments of the Missouri River. It would provide more protection to water quality than Alternatives A and E, although it would be difficult to measure the magnitude of this protection.

Alternative E

The impacts would be the same as Alternative A.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives B and C.

Impacts to Water from Natural Gas Exploration and Development

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Developing existing leases would be subject to standard operating procedures and BMPs which minimize surface disturbance. The quantity of increased erosion and sedimentation from oil and gas activities would be similar among all the alternatives. The differences between alternatives concerning disposal water and seismic operations would be so slight it would not be measurable.

No additional leases would be allowed in the Monument. The infrastructure already exists for most of the current leases. Any additional impacts from oil and gas activities would be the same for all alternatives.

Impacts to Water from Access and Transportation

Alternatives A (Current Management) and B

Additional roads in the Monument may increase erosion/sedimentation and degrade water quality. The increase in degradation would depend on the amount of new roads constructed. Overall, the increase in sediment from new roads would not be measurable considering the erosive nature of the soils throughout the Missouri River Breaks.

Alternatives C, D, and E

Restricting vehicular access in sensitive areas would result in less erosion and sedimentation compared to Alternatives A and B.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C, D, and E.

Summary of Cumulative Impacts to Water

Alternatives A (Current Management) and B

These alternatives could create the potential for large, catastrophic fires; making them the least attractive for protecting water resources. The impacts, if these fires occur, could degrade water quality, infiltration and ground water recharge for the short term.

Alternatives C, D, and E

These alternatives would result in a gradual improvement in watershed conditions in the long term.

Implementation of the completed watershed plans would have both short and long-term positive impacts to water resources.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C, D, and E.

Forest Resources

Impacts to Forest Resources from Forest Products

Alternative A (Current Management)

In recent years, most forest product sales have been personal use incidental products (firewood, Christmas trees, post and poles, etc.). Very few sawlog sales have occurred and most have been minor quantities less than 3,000 board feet (a log truck full of wood is about 4,500 board feet).

Under current management, the immediate impacts would be occasional stumps which may negatively impact aesthetics, although the quantities sold would not result in an entire hillside full of stumps. There may be scattered slash and residue. Some off-road trails and ruts may occur; however, all permits would be written with the stipulations that vehicles are to stay on authorized roads and trails. Along with bare mineral soil being disturbed comes the potential for weeds and other invasive plants.

The minimal amount of forest products being sold would not affect the likelihood of improving overall forest health. Because activities like Christmas tree gathering often result in taking the prettiest tree (which in all likelihood is the

genetically superior tree), the best trees could be high-graded from among this size class of timber.

Some lost revenues may result from not aggressively pursuing opportunities that arise on neighboring ownerships, which could sometimes lead to poorly designed transportation and skidding systems if these opportunities on adjoining lands are not pursued.

Alternatives B and C

Waiting for opportunities to conduct minor sales may or may not coincide with opportunities that arise on adjoining lands. Forest health issues typically are throughout a watershed or drainage and are larger than specific treatment areas. The BLM would need to treat for forest health on a large scale.

Designating specific areas for incidental uses such as firewood, Christmas trees, etc. would limit negative impacts to specific areas. Concentrated use such as Christmas tree cutting or firewood gathering could result in intensive overuse in a relatively small area; however, this would be easier to monitor for negative impacts because it would be confined to a small area.

Alternative D

The impacts would probably be similar to Alternatives B and C, except there may be no need to wait for opportunities on adjoining land.

Alternative E

There would be no impacts directly related to harvest. However, there would be lost opportunities to treat forested land and sell products in conjunction with neighboring activities and there would be at least some lost revenue. There would be no opportunity to treat for forest health if even on a small project level scale. As adjoining properties sell forest products, the chance exists to create an unnatural straight-edge effect where cutting occurs up to BLM but not beyond. Intentional and/or unintentional trespass may occur, resulting in increased workloads to resolve.

Alternative F (Preferred Alternative)

Forest management impacts would be short term if project planning is done properly, and should create an overall positive benefit to resources. Bare mineral soil exposure due to skidding products, burning slash piles, etc. leave a short-term scar on the landscape such as bare soil exposure, ash and smoke residue. In the short term, harvesting material would create fewer impacts on the landscape than a catastrophic, stand-replacing wildland fire.

Summary of Cumulative Impacts to Forest Resources

Alternatives A (Current Management), B, C, and D

The cumulative impacts would be very similar for all of these alternatives. Forest products sales would be incidental and so scattered that they would be relatively insignificant, unless associated with a much larger project adjoining another ownership.

Alternative E

No cumulative impacts would be expected, except that no treatment would increase the possibility of a stand-replacing event such as wildland fire. The cumulative impacts of such an event could be devastating; depending on the timing of other natural events that may follow (heavy rains following a catastrophic wildland fire would result in significant soil erosion and may lead to negative downstream cumulative impacts).

Alternative F (Preferred Alternative)

The impacts would be similar as Alternatives A, B, C, and D.

Lands and Realty

Impacts to Lands and Realty Common to All Alternatives

Continuing to grant rights-of-way within the Monument, provided impacts can be mitigated, would ensure state and private landowners access to their lands and would allow continued access for transportation and utility needs. However, the need to protect the objects for which the Monument was designated may result in delays and more expense incurred by the right-of-way applicant.

The ability to pursue land exchanges could result in an improved land pattern leading to more efficient management of the Monument. The State of Montana owns over 39,000 acres of land intermingled with the Monument; management of the state land is based on different goals and policies than those of the BLM. Therefore, the ability to consolidate these parcels with existing BLM land would enhance the BLM's ability to manage resources to further enhance and protect those values for which the Monument was designated. The same holds true for private land intermingled with the Monument.

Impacts to Lands and Realty from Health of the Land and Fire

Rights-of-Way

Alternative A (Current Management)

The seven corridors designated in the West HiLine RMP would maintain their current width where they cross the Missouri River. Also, the Klabzuba pipeline would be restricted to the width of the pipeline right-of-way (35 to 50 feet).

Right-of-way (ROW) applicants would be encouraged to locate their ROWs within the designated corridors or outside avoidance areas. Applicants would be restricted from locating ROWs in exclusion areas.

Alternatives B, C, D, and E

The eight designated utility and transportation corridors would have defined boundaries where they cross the Monument and would be restricted to within 1/2 mile of the centerline of the following roads/rights-of-way: State Secondary Highway #236; Lloyd/Stafford Ferry road; Klabzuba pipeline; DY Trail (Power Plant Ferry road); and U.S. Highway 191. The remaining three designated corridors at Fort Benton, Loma and Virgelle only apply to the Missouri River. The acreage within each of the defined boundaries is listed below:

State Highway #236	1,744
Lloyd/Stafford Ferry Road	4,783
Klabzuba Pipeline	3,198
DY Trail (Power Plant Ferry Road)	11,279
U.S. Highway 191	214

Right-of-way applicants would be encouraged to locate their ROWs within the designated corridors or outside avoidance areas. Applicants would be restricted from locating within exclusion areas, which cause surface disturbance or impact the visual resources.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives B, C, D, and E.

Land Ownership Adjustment

Alternatives A (Current Management) B, C, D, and E

No lands would be identified for disposal and there would be no impact.

Alternative F (Preferred Alternative)

Eighty acres of BLM land on the edge of the Monument, some of which is suitable for farming, would be disposed of to a private landowner in exchange for 71.12 acres of privately owned river frontage which could be used as a primitive campsite. The BLM land contains none of the objects for which the Monument was designated and has been a source of conflicts of use. The private land contains riparian areas, cottonwoods and suitable camping areas.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, and D

If the streams are not recommended as suitable, there would be no impact. Cow Creek and/or Dog Creek are included under other designations including the Upper Missouri National Wild and Scenic River, Upper Missouri River Breaks National Monument, Lewis and Clark National Historic Trail, and the Nez Perce National Historic Trail (Cow Creek). Eagle Creek is also within three of these current designations, but additionally, it does not cross BLM land within those designations.

Alternative E

If Cow Creek, Dog Creek or Eagle Creek are recommended as suitable, there would be no additional impacts to lands and realty.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, C, and D.

Impacts to Lands and Realty from Natural Gas Exploration and Development

Alternative A (Current Management)

Rights-of-way may need to be relocated to avoid slopes over 30%, or over 20% if they contain extremely erosive or slumping soils.

Alternative B

Right-of-way construction or installation may be delayed and less cost effective when located on slopes exceeding 30%.

Alternatives C and D

Right-of-way construction or installation may be delayed and less cost effective when located on slopes exceeding

30% or slopes exceeding 20% which contain extremely erosive or slumping soils. Roads may be prohibited on slopes of 40% or greater.

Alternative E

Roads would be prohibited on slopes of 20% or greater.

Alternative F (Preferred Alternative)

Right-of-way construction or installation may be delayed and less cost effective when located on slopes exceeding 30% or slopes exceeding 20% which contain extremely erosive or slumping soils.

Roads more than 300 feet in length would be prohibited on slopes of 40% or greater.

Summary of Cumulative Impacts to Lands and Realty

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Right-of-way installation or construction may be delayed and may be more expensive in order to avoid or mitigate impacts to sensitive areas or habitat.

Livestock Grazing

Impacts to Livestock Grazing Common to All Alternatives

Fish and Wildlife

Grazing permit holders that have allotments in bighorn sheep habitat within the Monument would not have the option to change the class of livestock to domestic sheep. Currently, there are few requests to change permits from cattle to sheep so this impact would not likely impact many grazing permit/lease holders.

This RMP/EIS does not commit additional forage to be allocated to wildlife at the expense of livestock, nor does it specifically call for reductions to accommodate existing wildlife populations. However, if monitoring information indicates that Standards for Rangeland Health are not being met and the forage being allocated to livestock is the cause of not meeting standards, adjustments in allocated forage could be made through the watershed planning process. Under anticipated future conditions, this is expected to be relatively minor and would only occur in localized areas that are critical to wildlife.

Fencing reservoirs could potentially limit water availability for livestock in some cases. However, this action could be mitigated by piping water away from reservoirs to a stock water tank.

Actions to improve the quality and quantity of nesting, brood rearing and winter habitat for upland game birds may limit the amount of livestock use that can occur in an area. This could mean a reduction in the AUMs available and the livestock production capacity in a localized area; however, most of this adjustment could be mitigated by adjusting seasons of use or the duration of grazing.

Soils

In some cases, the location of proposed range improvements may have to be changed to areas with lower erosion potential. Although this may create an inconvenience, it would also be beneficial to livestock permit/lease holders as it would likely lengthen the life expectancy of range improvements and result in fewer long-term impacts such as accelerated erosion, sedimentation, surface disturbance during maintenance, noxious weed outbreaks and deterioration of rangeland health.

Vegetation – Native Plants

Adjustments in grazing authorizations to meet Standards for Rangeland Health may cause some inconvenience or change in the established way of grazing an area, but in the long term, meeting Standards for Rangeland Health should stabilize the AUMs available for livestock.

Vegetation – Riparian

Riparian-wetland objectives would be met at current stocking levels with adjustments that have been implemented as part of the incorporation of Standard for Rangeland Health and implementation of Guidelines for Livestock grazing in recent watershed and other activity plans. Reductions in AUMs to meet riparian-wetland objectives would not likely occur. Riparian management would be emphasized through continuing monitoring and the adaptive management process. This emphasis has shifted some grazing use to uplands. This trend would continue and, in general, less hot season grazing would occur in riparian areas. The need to minimize livestock use of riparian areas would increase management requirements for the grazing permittee. Permittees on approximately 20 allotments would need to spend a few days every grazing season keeping up fences, water developments, or moving livestock to meet riparian community management goals.

Vegetation – Noxious Weeds

Continued control of noxious weeds would benefit grazing by decreasing the costs associated with widespread inva-

sions of noxious weeds (lost forage and escalating weed treatment costs).

Water

The reserve water right (as established through the Proclamation) for Arrow Creek and the Judith River carries a priority date of 2001. The reserve water right has little potential to impact ranchers with existing water rights because most of these water rights were established between the 1880s through the mid-1950s. Ranchers and farmers within the Judith River and Arrow Creek drainage basin who request water rights in the future could be impacted as they could be denied a water right on private land. Approval of proposals to build new improvements such as reservoirs on BLM land in these basins would be more difficult and in most cases these proposals would be denied.

Livestock Grazing

Livestock grazing would continue according to direction in the Proclamation. There would be no change to the process that is currently used to plan grazing. Watershed plans would continue to be used for site-specific planning and to achieve Standards for Rangeland Health and implement Guidelines for Livestock Grazing Management.

Standards for Rangeland Health

Meeting Standards for Rangeland Health would continue to be a goal of management and will be monitored regularly. Guidelines for Livestock Grazing Management would continue to be implemented and refined through an adaptive management process as resource conditions change. These livestock grazing guidelines have been implemented through the watershed planning process and no additional impacts would occur as a result of the decision in this RMP/EIS.

Recreation

Recreational activities would have the potential to disrupt livestock grazing and management of grazing by displacement of livestock and occasional loss of forage. However, current levels of use by respectful and prudent recreationists have not had serious impacts on livestock grazing and none are anticipated.

Aviation

Landings and takeoffs from backcountry airstrips would have the limited potential to disturb livestock. However, the time of disturbance is a very short time period (time for landing and taxi and take off). Current and anticipated use of backcountry airstrips is very low (less than 100 landings/takeoffs per year). In addition, since pilots' aircraft and their very lives depend on exceptional diligence to avoid

problems with panicked livestock, impact to livestock grazing would be inconsequential.

Impacts to Livestock Grazing from Health of the Land and Fire

Fish and Wildlife - Greater Sage-Grouse

Alternative A (Current Management)

There would be no impacts to livestock grazing.

Alternatives B, C, and D

These alternatives would result in few changes to livestock grazing because most grazing activity occurs outside of the important times for sage-grouse. Allotments near sage-grouse leks would be under more strict utilization limits in order to leave adequate residual cover for sage-grouse in suitable nesting areas. The utilization limits could be accommodated by management actions to distribute livestock away from leks and nesting areas.

Conversion of non-native grasses to native vegetation would cause short-term impacts as these areas would need rest to allow native vegetation to establish. Generally, this rest/establishment period would not allow grazing during the growing season for the first 2 years. The overall impact would likely be less than 0.1% of the total AUMs within the Monument.

If winter habitat is needed for sage-grouse security, season of use adjustments could occur on a site-specific basis and would be limited to sagebrush cover types of vegetation. Predicting the potential loss of AUMs is problematic, but under a worst case scenario would probably be less than 1% of the AUMs available in the Monument, and would mostly be in eight or fewer allotments. The most likely scenario would involve a temporary loss of less than .1% of the total AUMs in the Monument.

The use of prescribed fire could benefit grazing in the long term by increasing the production of herbaceous species. Short-term impacts would consist of a temporary loss of AUMs because of the need to rest burned areas after a fire (usually rest for the growing season during the first 2 years following the fire). The short-term impacts caused by the need for a rest period would be offset by the long-term increase in productivity of range forage.

The limit on utilization could cause a slight adverse impact if a grazing prescription calls for periodic high use or high density grazing. Overall, this impact would be light because high stocking rates, or high density grazing would be limited from March 1 to June 15. This restriction could be partially remedied through the use of various grazing strategies and methods to shift grazing use away from leks.

Alternative E

This alternative would directly impact those permittees with grazing permits/leases for allotments near sage-grouse leks. Livestock grazing in suitable nesting habitat would not occur from March 1 to June 15 and from December 1 to March 31. Eight allotments would be impacted. However, the impacted area would not include the entire allotment. The losses in seasons of use could be a few weeks to a couple months in that portion of the allotment that is sage-grouse habitat. There could be some loss of AUMs of forage if no alternative grazing is available in the allotment. This loss of AUMs would amount to less than 1% of the AUMs in the entire Monument. It could cause some hardship on individual operators and lead to overuse of private land in the same area that is no less important to sage-grouse. Mitigating measures would consist of adjusting which pastures are used and to what level utilization is allowed to minimize the net effect on livestock operations.

Reclamation of non-native grasslands (conversion) back to native plant species would result in a short-term loss of AUMs because these areas would need to be rested during the growing season for 2 years after restoration. However, even this short-term loss of forage would be recovered as the native vegetation becomes established.

Those permittees who rely on non-native grasses on BLM lands for spring/early summer use could be adversely impacted by conversion back to native vegetation, but such impacts would be slight as most ranches have non-native pastures on private land.

The use of prescribed fire would benefit grazing in the long term by increasing the production of herbaceous species. Short-term impacts would consist of loss of AUMs due to the rest period required after a fire. The short-term impacts caused by the need for a rest period would be offset by the long-term increase in productivity of native rangeland forage.

Alternative F (Preferred Alternative)

This alternative would create some inconvenience for livestock operations and limit use in key areas for sage-grouse. This impact would involve parts of eight allotments. Only three of the allotments would have substantial adjustments in grazing practices since the sage-grouse habitat only takes up a small part of the allotment. The impact would probably be more in season of use rather than in AUMs available.

Reclamation of non-native grasslands (conversion) back to native plant communities could result in a short-term loss of AUMs because these areas would need rest during the growing season for 2 years after restoration. However, even this short-term loss of forage would be recovered as the native vegetation becomes established.

Those permittees who rely on tame grasses on BLM lands for spring/early summer use could be adversely impacted by conversion back to native vegetation, but such impacts would be slight as most ranches have non-native pastures on private land.

The use of prescribed fire would benefit grazing in the long term by increasing the production of herbaceous species. Short-term impacts would consist of loss of AUMs due to the rest period required after a fire. The short-term impacts caused by the need for a rest period would be offset by the long-term increase in productivity of native rangeland forage.

Fish and Wildlife - Black-Tailed Prairie Dog Towns

Alternative A (Current Management)

Alternative A would create no impact to livestock grazing, except in limited cases where prairie dog towns would compromise rangeland health standards.

Alternatives B, C, and D

These alternatives would create localized impacts to available forage for livestock in those pastures where the towns exist and could force grazing use into areas that were normally lightly used. Controlling prairie dog towns when they are compromising Standards for Rangeland Health would benefit grazing through increased productivity of forage.

Alternative E

Prairie dog towns would be allowed to expand without any controls and would have the potential to reduce AUMs. This potential is of particular concern on river bottom terraces where the prairie dog town could monopolize an entire bottom, leaving very little forage for livestock. Percentage-wise on the scale of the Monument, this would amount to very little loss; however, in an allotment that depends on river bottoms, it could result in substantial reductions of forage and/or loss of seasons of use.

Alternative F (Preferred Alternative)

There could be localized losses of forage available for livestock from prairie dog towns.

Fish and Wildlife - Mitigation

Alternative A (Current Management)

There would be no impact to livestock grazing from actions to accommodate greater sage-grouse, designated sensitive status species, bald eagles, big game winter range or big-horn sheep lambing areas.

Alternative B

Greater sage-grouse management could create a minor hindrance to livestock grazing because of the requirement to limit surface disturbance to certain time periods. These impacts would occur on a rare basis. Overall, the impacts would be minimal since most limitations to surface disturbance are proposed in early spring and winter, while most surface-disturbing activities are scheduled for summer or fall.

There would be no impacts to livestock grazing from actions to manage designated sensitive status species, bald eagles, big game winter range or bighorn sheep lambing areas.

Alternative C

Greater sage-grouse management could create a minor hindrance to livestock grazing because of the requirement to limit surface disturbance to certain time periods. These impacts would occur on a rare basis. Overall, the impacts would be minimal since most limitations to surface disturbance are proposed in early spring and winter, while most surface-disturbing activities are generally scheduled for summer or fall.

Limiting seasons of operation for surface-disturbing activities to protect designated sensitive species would inconvenience the construction of reservoirs and other maintenance work. With proper planning and advanced scheduling, this impact could be mitigated and would not seriously impact livestock grazing.

In rare instances, the requirement to avoid surface disturbances in the presence of an active bald eagle nest could impact the installation or maintenance of a range improvement. The impact would be minor and could usually be mitigated by placing range improvements in alternative locations.

There would be no impacts to livestock grazing from actions to manage big game winter range or bighorn sheep lambing areas.

Alternative D

Greater sage-grouse management could create a minor hindrance to livestock grazing because of the requirement to limit surface disturbance to certain time periods. These impacts would occur on a rare basis. Overall, the impacts would be minimal since most limitations to surface disturbance are proposed in early spring and winter, while most surface-disturbing activities are generally scheduled for summer or fall.

Limiting seasons of operation for surface-disturbing activities to protect designated sensitive species would inconvenience the construction of reservoirs and other maintenance work. With proper planning and advanced scheduling, this impact could be mitigated and would not seriously impact livestock grazing.

The requirement to avoid an active bald eagle nest could create a minor hindrance to grazing management when a range improvement is needed near a nest or in riparian habitat near a nest. Only one or two allotments could potentially be impacted.

Provisions to accommodate big game winter range management could occasionally limit the construction of a range improvement. Such impacts could usually be mitigated by placing range improvements in alternative locations. Impacts would be minor.

There could be some limits on range improvements near bighorn sheep lambing areas in the future.

Alternative E

Greater sage-grouse management could create a minor hindrance to livestock grazing because of the requirement to limit surface disturbance to certain time periods. These impacts would occur on a rare basis. Overall, the impacts would be minimal since most limitations to surface disturbance are proposed in early spring and winter, while most surface-disturbing activities are generally scheduled for summer or fall.

Limiting seasons of operation for surface-disturbing activities to protect designated sensitive species would inconvenience the construction of reservoirs and other maintenance work. With proper planning and advanced scheduling, this impact could be mitigated and would not seriously impact livestock grazing.

The requirement to avoid an active bald eagle nest could create a minor hindrance to grazing management when a range improvement is needed near a nest or in riparian habitat near a nest. Only one or two allotments could potentially be impacted.

This alternative could occasionally limit the construction of a range improvement in big game winter range. Such impacts could usually be mitigated by placing range improvements in alternative locations. Impacts would be minor.

There could be some limits on range improvements near bighorn sheep lambing areas.

Alternative F (Preferred Alternative)

Greater sage-grouse management could create a minor hindrance to livestock grazing because of the requirement to limit surface disturbance to certain time periods. These impacts would occur on a rare basis. Overall, the impacts would be minimal since most limitations to surface disturbance are proposed in early spring and winter, while most surface-disturbing activities are generally scheduled for summer or fall.

Limiting seasons of operation for surface disturbance activities to protect designated sensitive species would inconvenience construction of reservoirs and other maintenance work. With proper planning and advanced scheduling for work, this impact could be mitigated and would not seriously impact livestock grazing.

Management of active bald eagle nests could create a minor hindrance to grazing management when a range improvement is needed near a nest or in riparian habitat near a nest. Only one or two allotments could potentially be impacted.

This alternative could occasionally limit the construction of range improvement in big game winter range. Such impacts could usually be mitigated by placement of range improvements in alternative locations. Impacts would be minor.

There could be some limits on range improvements near bighorn sheep lambing areas.

Vegetation

Alternative A (Current Management)

There would be no impacts.

Alternatives B and C

Resource reserve allotments would benefit livestock operators by providing forage when allotments are unavailable for grazing due to rangeland conditions (for example, prescribed fires or wildland fires). Creating resource reserve allotments could come about through several means (including relinquishment or cancellation of a permit, land acquisition, etc). In some instances, an individual operator could have a reduction of forage available; however, on the scale of the Monument and the local economy, this loss would not represent a substantial percentage. The BLM would not anticipate creating a great number of resource reserve allotments, but would like to develop the opportunity to allow more flexibility in livestock management. If resource reserve allotments were to be created on a large scale, they would be subject to further planning and environmental review.

The potential for an increased spread and invasion of noxious weeds could result in slight loss to forage base and increased cost of weed treatment in the future.

Alternative D

Resource reserve allotments would benefit livestock operators by providing forage when allotments are unavailable for grazing due to large fires, etc. Creating resource reserve allotments could come about through several means (including relinquishment or cancellation of a permit, land acquisition, etc). In some instances, an individual operator could have a reduction of forage available; however, on the scale of the Monument and the local economy, this loss would not represent a substantial percentage. The BLM would not anticipate creating a great number of resource reserve allotments, but would like to develop the opportunity to allow more flexibility in livestock management. If resource reserve allotments were to be created on a large scale, they would be subject to further planning and environmental review.

Alternative E

Without resource reserve allotments livestock operators may need to reduce AUMs and/or seasons of use, at least in the short term, which would be an adverse impact.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternative D.

Range Improvements

Alternative A (Current Management)

There would be no impacts.

Alternatives B, C, and D

The impacts could include disruption of grazing and the need to revisit grazing plans because pasture configurations and allotment boundaries could change. In some cases, positive benefits may be realized from changes to grazing patterns.

Alternative E

The impacts could include disruption of grazing and the need to revisit grazing plans because pasture configurations and allotment boundaries could change. In some cases positive benefits may be realized from changes to grazing patterns.

There could be some inconvenience to ranchers from restrictions on reservoir placement. Using three-wire fences may not meet the needs of controlling livestock in some

instances and could increase the costs of operation and effectiveness of prescribed grazing treatments. Some water sources that might be in the interest of livestock, but not in the interest of other resource values would be forgone, which could limit livestock use.

Alternative F (Preferred Alternative)

This alternative provides flexibility in the type of fence used and establishes criteria for developing livestock water facilities. There could be a reduction in the construction of livestock water sources, which could limit available forage. However, if grazing prescriptions are well designed and followed, there should be no effective loss in overall forage available.

Visual Resources

Alternatives A (Current Management), B, and C

These alternatives could impose some restrictions on the size and type of range improvements.

Alternatives D and E

These alternatives would cause greater impacts to livestock grazing due to visual classification levels with stricter requirements.

Alternative F (Preferred Alternative)

This alternative could limit some aspects of range improvement development; however, these impacts could be mitigated with design specifications and would effectively be only an inconvenience to livestock grazing facility installation.

Forest Products

Alternative A (Current Management)

There would be no impact.

Alternatives B, C, and D

Improved production of herbaceous understory would benefit grazing slightly.

Alternative E

Encroaching forest vegetation could reduce available forage for livestock grazing. This alternative could create more hazardous fuel buildup and, in turn, increase the risk of wildland fires that could consume forage and cover for both livestock and wildlife.

Alternative F (Preferred Alternative)

The impact would be the same as Alternatives B, C, and D.

Fire

Alternative A (Current Management)

There would be no impact.

Alternative B

There would be some potential for reduced grazing forage due to encroaching forest vegetation and foregoing the opportunity to use prescribed fires. The loss would be slight, but measurable over time.

Alternatives C and D

There would be no impact.

Alternative E

There could be some negative impacts due to an increased risk of large fires. Such fires could lead to substantial short-term losses of forage. This loss of forage could extend into the following years and grazing would have to be adjusted to allow plants to recover.

Alternative F (Preferred Alternative)

There would be no impact.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, and D

As long as Standards for Rangeland Health are being met, recommendation of a wild and scenic river would not impact grazing. The existing designation of the Upper Missouri National Wild and Scenic River, in itself, has not imposed any substantial need to adjust livestock grazing.

Alternative E

As long as Standards for Rangeland Health are being met, recommendation of a wild and scenic river would not impact grazing. The existing designation of the Upper Missouri National Wild and Scenic River, in itself, has not imposed any substantial need to adjust livestock grazing. Secondary actions of a designation could lead to localized inconvenience to livestock grazing if specific developments would be installed to accommodate recreation or historic preservation.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, C, and D.

Impacts to Livestock Grazing from Visitor Use, Services and Infrastructure

Recreation

Alternatives A (Current Management), B, C, and D

Large group events could conflict with livestock management and/or disrupt livestock grazing, leading to some short-term losses of forage or season of use.

Alternative E

There would be no impact.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, C, and D.

Upper Missouri River SRMA

Alternative A (Current Management)

Opportunities for Boaters – Limiting the floater group size to 50 on the Missouri River would not reduce livestock/camper conflicts at campsites. The 14-day campground stay period and lack of an allocation system would allow conflicts to continue.

Camping Facilities – Establishing campsites would create a potential for impacts to livestock grazing; however, these could be mitigated with public information and some controls on seasons of livestock use.

There may be an increase in conflicts between campers and livestock on the Missouri River.

Alternative B

Opportunities for Boaters – The potential for conflicts between campers and livestock would increase due to a lack of an allocation system, no launch restrictions for groups, no floater group size limits, and a 14-day campground stay period. Conflicts would mostly occur during summer and early fall.

Camping Facilities – Establishing campsites would create some potential for impacts to livestock grazing; however,

these could be mitigated with public information and some controls on seasons of livestock use.

There may be an increase in conflicts between campers and livestock on the Missouri River.

Alternative C

Opportunities for Boaters – Limiting the floater group size to 20 on the Missouri River and implementing launch limits in addition to a 2-day limit on the length of stay at Level 2 sites during peak periods would reduce livestock/camper conflicts at campsites. Conflicts would mostly occur during summer and early fall.

Camping Facilities – Establishing campsites creates the potential for impacts to livestock grazing; however, these could be mitigated with public information and some controls on seasons of livestock use.

Alternative D

Opportunities for Boaters – If an allocation system is implemented, along with a 2-day campsite stay limit at Level 2 sites during peak periods, potential conflicts between livestock and campers could be reduced. However, conflicts could continue due to large group size limits (30) and no launch restrictions for groups smaller than 30. Conflicts would occur primarily during summer and early fall.

Increasing the number of Level 2 sites based on demand would better disperse camping along the river and limit overall camper/livestock conflicts to some degree.

Camping Facilities – Establishing campsites creates the potential for impacts to livestock grazing; however, these could be mitigated with public information and some controls on seasons of livestock use.

Alternative E

Opportunities for Boaters – Implementing an allocation system, group size limit (16), launch limit, and a 2-day campsite stay limit at Level 2 and 3 sites during peak periods would limit camper/livestock conflicts. This alternative would lessen the potential for conflicts between campers and livestock more than any other alternative.

Camping Facilities – Establishing campsites would create the potential for impacts to livestock grazing; however, these could be mitigated with public information and some controls on seasons of livestock use.

Motorized Watercraft – There could be an adverse impact caused by the inability to transport fencing materials to

riparian exclosures and maintain fences and water facilities. Grazing plans may need to be altered.

Alternative F (Preferred Alternative)

Opportunities for Boaters – The size of groups would be controlled and would curtail some conflicts between livestock and the recreating public. Some conflicts would continue; however, with raising public awareness these conflicts should be minimized.

Camping Facilities – Established campsites could create some potential for impacts to livestock grazing; however, these can be mitigated with public information and some controls on seasons of livestock use.

Uplands SRMA

Alternative A (Current Management)

Motorized tours could impact livestock grazing activities with occasional disruption of livestock and the potential of gates being left open; however, these would be minor and could be mitigated with user education.

Alternatives B and C

Motorized tours could impact livestock grazing activities with occasional disruption of livestock and the potential of gates being left open; however, these would be minor and could be mitigated with user education.

Allowing hunting outfitters access to the entire Monument could concentrate use to a specific area in any given year. Concentrated hunting activity could disrupt livestock operations.

Alternatives D and E

Motorized tours could impact livestock grazing activities with occasional disruption of livestock and the potential of gates being left open; however, these would be minor and could be mitigated with user education.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives D and E.

Impacts to Livestock Grazing from Natural Gas Exploration and Development

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Seismic – The use of explosives in seismographic activities could displace livestock and on rare occasions could be

hazardous to livestock. These impacts could be mitigated with stipulations requiring safety zones and respectful attention to other uses occurring in the area.

Drilling Operations – Gas development, and associated activities, could impact livestock forage lost to roads and well sites. This would be a small loss on a short-term basis. These impacts could be mitigated with reclamation standards and operation stipulations that minimize travel, assert leaving fences and range improvements in place, and extend courtesy to the livestock operator.

Impacts to Livestock Grazing from Access and Transportation

BLM Road System

Alternatives A (Current Management), B, and C

Since authorized users have the option to travel off road and on closed roads for administrative purposes there would be no direct impact to livestock grazing.

Road System Criteria – There would be no impact.

Alternative D

Seasonal use provisions for travel off road and on closed roads for administrative purposes could impact the management of livestock grazing.

Road System Criteria – Vehicles Ways in WSAs – It could be more difficult for permittees to access range improvements to perform major maintenance work on fences or water projects. This would not create day-to-day impacts since much of the WSAs are rough and dissected and impractical for motorized equipment.

Bighorn Sheep Lambing Areas – The limitation on use of roads may create some difficulty for those few ranchers who need to use roads near lambing areas to repair range improvements and manage livestock before June 15.

Big Game Winter Range – Seasonal closures would occasionally hamper livestock management and access to range improvements. The seasonal closure to May 15 would impact allotments with late spring turnout times. However, maintenance activities that occur in the wintering period are generally fence repairs and turning on water systems, and would not involve using heavy equipment, which normally would occur in the summer or fall.

Designated Sensitive Species – In isolated cases, livestock management and access to range improvements could be hampered. Only a few allotments would be affected.

Bald Eagle – In rare cases, management of livestock and access to range improvements could be limited during the active nesting times. At this time only one or two allotments could be affected.

Alternative E

Requiring permittees to receive permission to use roads on a case-by-case basis would be impractical due to the frequency of use and the need for immediate use to address urgent livestock management needs. It has the potential of delaying timely action which could lead to secondary impacts of abuse of riparian areas, habitat intended for wildlife, recreation sites and/or strained relationships with neighbors and other users of the Monument. Permittees would not be able to receive permission on weekends and holidays and would be unable to properly maintain range improvements and manage livestock.

Road System Criteria – Vehicles Ways in WSAs – It would be more difficult for permittees to access range improvements to perform major maintenance work on fences or water projects. This would not create day-to-day management impacts since much of the WSAs are rough and dissected and impractical for motorized equipment.

Greater Sage-Grouse – Accessing range improvements and tending livestock could be hampered.

Bighorn Sheep Lambing Areas – The limitation on use of roads may create some difficulty for those few ranchers who need to use roads near lambing areas to repair range improvements and manage livestock before June 15.

Big Game Winter Range – Seasonal closures would occasionally hamper livestock management and access to range improvements. The seasonal closure to May 15 would impact allotments with late spring turnout times. However, maintenance activities that occur in the wintering period are generally fence repairs and turning on water systems, and would not involve using heavy equipment, which normally would occur in the summer or fall.

Designated Sensitive Species – Livestock management and access to range improvements would be more difficult in some cases. This alternative would create the most difficulty in management of grazing allotments, and could impact a moderate number of allotments, especially those with nesting habitat in the form of large trees and cliffs.

Bald Eagle – In rare cases, livestock management and access to range improvements could be limited during the active nesting times. One or two allotments could be affected.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives A, B, and C.

Summary of Cumulative Impacts to Livestock Grazing

The impacts to livestock grazing have been dealt with in watershed and other activity plans which are incorporated into this RMP/EIS.

Alternative A (Current Management)

There would be no cumulative impacts that have not already been considered in previous planning efforts.

Alternatives B, C, and D

In these alternatives, management of habitat for sage-grouse and other wildlife species could cause some inconvenience to livestock grazing. Recreational activities could cause conflicts between livestock grazing and other uses. Establishment of resource reserve allotments would add flexibility to livestock grazing management.

Alternative E

Management of wildlife habitat could reduce available forage on select allotments. Limitations on travel could make livestock management and range improvements more difficult. Not having resource reserve allotments available would reduce flexibility in grazing activities and could have the impact of short-term reductions that could not be mitigated for an individual operator. Strict limitations on fencing specifications could lead to ineffective control of livestock and, in turn, higher livestock management costs and could also jeopardize vegetation resources. Limiting/restricting water facilities could limit use of some forage that might otherwise be available for livestock.

Alternative F (Preferred Alternative)

The establishment of resource reserve allotments would allow added flexibility in livestock grazing management. Management of wildlife habitat and recreation would have minor, inconvenient impacts to livestock grazing.

Minerals – Oil and Gas

Impacts to Minerals – Oil and Gas from Health of the Land and Fire

Rights-of-Way (ROWs)

Alternative A (Current Management)

Corridors – The Klabzuba pipeline would not be one of the designated corridors crossing the Missouri River.

Avoidance Areas – This alternative may affect the ability to transport natural gas or access 1,440 acres (4%) of four non-West HiLine leases within the Ervin Ridge WSA and 2,331 acres of 5 non-West HiLine leases within the wild and scenic sections of the UMNWSR (one pipeline currently extends into two of the five leases). Riparian areas and areas containing sedimentary Breaks soils would be avoided where possible; however, this alternative would affect the majority of the leased minerals because most of the soils are sedimentary Breaks soils.

Exclusion Areas – The wild section of the UMNWSR would be an exclusion area, which could affect the ability to transport natural gas or access 2,331 acres of 5 non-West HiLine leases (one pipeline currently extends into two of the five leases). The other exclusion areas would not affect the leases.

Alternatives B, C, D, E, and F (Preferred Alternative)

Corridors – The Klabzuba pipeline would be a designated corridor with a defined boundary that includes BLM land within 1/2 mile of the pipeline.

Avoidance Areas – These alternatives may affect the ability to transport natural gas or access 2,331 acres of 5 non-West HiLine leases within the wild and scenic sections of the UMNWSR (one pipeline currently extends into two of the five leases). Riparian areas and areas containing cultural/historic sites, unique geologic formations and sedimentary Breaks soils would be avoided where possible; however, these alternatives would affect the majority of the leased minerals because most of the soils are sedimentary Breaks soils.

Exclusion Areas—The wild section of the UMNWSR would be an exclusion area, which could affect the ability to transport natural gas or access 2,331 acres of 5 non-West HiLine leases (one pipeline currently extends into two of the five leases). These alternatives could also affect 1,440 acres (4%) of 4 non-West HiLine leases within the Ervin Ridge WSA. The other exclusion areas would not affect the leases.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

There would be no impact, as there would be no changes to the management of BLM land that would affect oil and gas minerals.

Impacts to Minerals – Oil and Gas from Natural Gas Exploration and Development

Alternative A (Current Management)

Seismic – There would be no impact to the natural gas resource.

Stipulations/Conditions of Approval – The stipulations and conditions of approval would affect a portion of the oil and gas leases in the Monument (Table 4.19).

Greater Sage-Grouse – Currently there are no known leks within 1/4 mile of the West HiLine leases. However, if a 1/4-mile restriction is applied as a condition for the non-West HiLine leases, 31 acres would be affected.

For nesting areas, a timing restriction could affect 1,276 acres of 5 West HiLine leases and if a similar restriction is applied as a condition to the non-West HiLine leases, an additional 4,498 acres would be affected. This timing restriction would preclude activities for 122 days from March 1 to June 30.

For crucial winter habitat, the timing restriction would affect 441 acres of 3 West HiLine leases with a 166 day restriction from December 1 to May 15.

Black-Tailed Prairie Dogs – For the West HiLine leases, surface use may be restricted or excluded within 1/4 mile of special status species. This would affect 72 acres of 1 West HiLine lease.

Designated Sensitive Species – For the West HiLine leases, surface use may be restricted or excluded within 1/4 mile of special status species. This would affect 3 acres (<1%) of 1 West HiLine lease. There are no known raptors nests within 200 meters of the non-West HiLine leases. However, if a 1/4-mile restriction is applied as a condition, an additional 532 acres would be affected (6 non-West HiLine leases).

Bald Eagle – Currently there are no known roosting or nesting sites in or near the existing oil and gas leases within the Monument, and there would be no impact to the natural gas resource.

Big Game Winter Range – For the West HiLine leases, surface use may be restricted or excluded from December 1 to May 15, during severe winters. This timing restriction would affect 6,986 acres (68%) of 9 West HiLine leases in deer and elk winter range and 2,561 acres (25%) of 7 West HiLine leases in antelope crucial winter range. If this timing restriction is applied as a condition to the non-West HiLine leases, an additional 19,137 acres of 18 leases would be affected by deer and elk winter range and 3,588 acres of 9 leases would be affected by antelope crucial winter range. This timing restriction would preclude activities for a period of 166 days.

Bighorn Sheep Distribution – The standard lease terms would apply to 3,080 acres of 4 West HiLine leases and 11,164 acres of 13 non-West HiLine leases.

Bighorn Sheep Lambing areas – The standard lease terms would apply to 1,059 acres of 4 West HiLine leases and 5,504 acres of 11 non-West HiLine leases.

Streams – Surface disturbance may be restricted on 2,303 acres (22%) of 10 West HiLine leases and 6,618 acres (20%) of 25 non-West HiLine leases.

Soils/Slopes – Surface disturbance would be restricted on slopes over 30% or on slopes over 20% with severely erodable and slumping soils. This alternative affects 3,394 acres of 10 West HiLine leases and 10,687 acres of 30 non-West HiLine leases. These acreage figures with slopes greater than 30% are incorporated in the acreage figure with slopes over 20% with severely erodable and slumping soils.

Visual Resources – A controlled surface use requirement would affect all the oil and gas leases (Table 4.19).

Drilling Operations – Based on the RFD, applying stipulations and likely conditions of approval, there is the potential for 35 wells to be drilled on federal minerals in the Monument. There is also the potential for 21 wells within 1/2 mile of the Monument on federal minerals.

This alternative would allow standard operating procedures and unrestricted access to monitor wells and facilities and would create only minimal impact to the natural gas resource.

Production Facilities and Equipment – The placement and construction of pipelines would follow standard operating procedures, including cross-country pipelines (Gold Book). This would create minimal impacts to the natural gas resource.

Table 4.19 Oil and Gas Leases Affected by the Stipulations and Likely Conditions of Approval Alternative A (Current Management)						
Stipulation/Condition of Approval	West HiLine Leases		Non-West HiLine Leases		All Leases	
	No.	Acres	No.	Acres	No.	Acres
Greater Sage-Grouse						
Lek			1	31	1	31
Nesting Area	5	1,276	10	4,498	15	5,774
Winter Habitat	3	441			3	441
Black-Tailed Prairie Dog	1	72			1	72
Designated Sensitive Species	1	3	6	532	7	535
Deer and Elk Winter Range	9	6,986	18	19,137	27	26,123
Antelope Crucial Winter Range	7	2,561	9	3,588	16	6,149
Bighorn Sheep Distribution	4	3,080	13	11,164	17	14,244
Bighorn Sheep Lambing	4	1,059	11	5,504	15	6,563
Streams & Riparian/Wetland Areas	10	2,303	25	6,618	35	8,921
Soils/Slopes						
20% & Severely Erodable	10	3,394	30	10,687	40	14,081
30%	10	1,683	29	5,352	39	7,035
VRM Class						
Class I	1	92	6	1,386	7	1,478
Class II	6	3,789	23	16,470	29	20,259
Class IV	10	6,447	14	14,621	24	21,068

The production of natural gas would follow current regulations and standards to dispose of produced water. This would create no impact to the natural gas resource.

All standards for oil and gas reclamation currently meet or exceed the reclamation requirements under this alternative, and there would be only minimal impacts to the natural gas resource.

Alternative B

Seismic – There would be no impact to the natural gas resource.

Conditions of Approval – The conditions of approval would affect a portion of the oil and gas leases in the Monument (Table 4.20).

Greater Sage-Grouse – A condition of approval would prohibit surface disturbance within 1/4 mile of sage-grouse leks. Currently there are no known leks within 1/4 mile of the West HiLine leases; however, this would affect 31 acres of 1 non-West HiLine lease.

For nesting areas, the timing restriction from March 1 to June 15, would affect 1,276 acres of 5 West HiLine and 4,498 acres of 10 non-West HiLine oil and gas leases with a 107 day restriction.

For crucial winter habitat, the timing restriction from December 1 to March 31, would affect 441 acres of 3 West HiLine oil and gas leases with a 121 day restriction.

Black-Tailed Prairie Dogs – A condition of approval would prohibit surface disturbance on prairie dog towns. This would affect 72 acres of 1 West HiLine lease. If allowed to expand, it could affect up to 100 acres.

Designated Sensitive Species – There are no known designated sensitive species within 200 meters of the oil and gas leases.

Bald Eagle – Currently, there are no known roosting or nesting sites within in or near the existing oil and gas leases. There would be no impact to the natural gas resource.

Big Game Winter Range – A condition of approval would prohibit surface disturbance on identified winter ranges from December 1 to March 31. This timing restriction would affect 6,986 acres (68%) of 9 West HiLine leases in deer and elk winter range and 2,561 acres (25%) of 7 West HiLine leases in antelope crucial winter range. If this timing restriction is applied as a condition to the non-West HiLine leases, it would affect an additional 19,137 acres of 17 leases in deer and elk winter range and 3,588 acres of 9 leases in antelope crucial winter range for a period of 121 days.

Table 4.20
Oil and Gas Leases Affected by the Conditions of Approval – Alternative B

<i>Condition of Approval</i>	<i>West HiLine Leases</i>		<i>Non-West HiLine Leases</i>		<i>All Leases</i>	
	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>
Greater Sage-Grouse						
Lek			1	31	1	31
Nesting Area	5	1,276	10	4,498	15	5,774
Winter Habitat	3	441			3	441
Black-Tailed Prairie Dog	1	72			1	72
Deer and Elk Winter Range	9	6,986	18	19,137	26	26,123
Antelope Crucial Winter Range	7	2,561	9	3,588	15	6,149
Bighorn Sheep Distribution	4	3,080	13	11,164	17	14,244
Bighorn Sheep Lambing	4	1,059	11	5,504	15	6,563
Soils/Slopes						
30%	10	1,683	29	5,352	39	7,035
VRM Class						
Class I	1	92	6	1,386	7	1,478
Class II	6	3,789	23	16,470	29	20,259
Class IV	10	6,447	14	14,621	24	21,068

Bighorn Sheep Distribution – The impacts would be the same as Alternative A.

Bighorn Sheep Lambing Areas – A condition of approval would prohibit surface disturbance in identified bighorn sheep lambing areas from April 1 to June 15. This timing restriction would affect 1,059 acres (16%) of 4 West HiLine leases and 5,504 acres (16%) of 11 non-West HiLine leases for a period of 76 days.

Streams – Surface disturbance would be prohibited within the channels of streams. There would be no impact to the natural gas resources.

Soils/Slopes – Surface disturbance on slopes 30% and greater would require an engineering and reclamation plan approved by the authorized officer. This would affect 1,683 acres of 9 West HiLine leases and 5,352 acres of 29 non-West HiLine leases.

Drilling Operations – Based on the RFD and applying the conditions of approval, there would be the potential for 44 wells to be drilled on federal minerals in the Monument. There would also be the potential for 23 wells within 1/2 mile of the Monument on federal minerals.

This alternative may cause an increase in the costs for drilling operations with the requirement for minimal surface disturbance (consider low impact drilling technology or multiple wells from one location).

This alternative would allow for unrestricted access to monitor wells and facilities. There would be no impact to the natural gas resource.

Production Facilities and Equipment – This alternative would increase the costs to mitigate noise levels and abate emissions on gas compression facilities. Other requirements would have an insignificant effect on the natural gas resource.

The placement and construction of pipelines would follow standard operating procedures including cross-country pipelines (Gold Book). There would be no impact to the natural gas resource.

The production of natural gas would follow current regulations and standards to dispose of produced water along with incorporating a wildlife escape ramp into a water disposal tank or pit. There would be no impact to the natural gas resource.

All standards for oil and gas reclamation currently meet or exceed the reclamation requirements under this alternative, and there would be no impact to the natural gas resource.

Alternative C

Seismic – Seismic activity would be restricted to designated roads with no surface blasting. This would restrict the industry's ability to identify geologic features worthy of further exploration, which may cause more impact than necessary.

Conditions of Approval – The conditions of approval would affect a portion of the oil and gas leases in the Monument (Table 4.21).

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – A condition of approval would prohibit or minimize surface disturbances on prairie dog towns. This would affect 72 acres of 1 West HiLine oil and gas lease. If prairie dogs are allowed to expand, it could affect up to 100 acres.

Designated Sensitive Species – A condition of approval would prohibit surface-disturbing activities within identified crucial habitat or within 1/4 mile of active nests. This would affect 3 acres (<1%) of 1 West HiLine and 532 acres of 6 non-West HiLine leases.

Bald Eagle – A condition of approval would prohibit surface disturbance within 1/2 mile of any nest that has been active within the last 7 years. Currently, there are no known roosting or nesting sites within or near the existing oil and gas leases in the Monument. There would be no impact to the natural gas resource.

Big Game Winter Range – The impacts would be the same as Alternative B.

Bighorn Sheep Distribution – A condition of approval would prohibit surface disturbances in identified bighorn sheep distribution areas from December 1 to March 31. This timing restriction would affect 3,080 acres (30%) of 4 West HiLine leases and 11,164 acres (37%) of 13 non-West HiLine leases for a period of 121 days.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative B.

Streams – Surface disturbance would be prohibited within 1,000 feet of streams. This would affect 4,339 acres of 11 West HiLine leases and 12,171 acres (37%) of 25 non-West HiLine leases.

Soils/Slopes – Surface disturbance would be restricted on slopes over 30% or on slopes over 20% with severely erodable and slumping soils (requires an engineering and reclamation plan). Surface disturbance would also be

restricted on slopes 40% and greater. This would affect 3,394 acres of 10 West HiLine leases and 14,081 acres of 30 non-West HiLine leases. These acreage figures with slopes greater than 30% are incorporated in the acreage figure with slopes over 20% with severely erodable and slumping soils.

Visual Resources – A controlled surface use requirement would affect all the oil and gas leases (Table 4.21).

Drilling Operations – Based on the RFD and applying the conditions of approval, there would be the potential for 28 wells to be drilled on federal minerals in the Monument. There would also be the potential for 21 wells within 1/2 mile of the Monument on federal minerals.

The requirement for minimal surface disturbance may cause an increase in the costs for drilling operations. Industry would probably consider low impact drilling technology or multiple wells from one location.

This alternative would allow for restricted access (types of vehicles and timing) to monitor wells and facilities.

Production Facilities and Equipment – This alternative would increase costs to mitigate noise levels and abate emissions on gas compression facilities. Other requirements would have an insignificant effect on the natural gas resource.

Pipelines would be required to stay within existing disturbance or the location that would create the least disturbance. The placement and construction of pipelines would follow standard operating procedures, including cross-country pipelines (Gold Book). There would be no impact to the natural gas resource.

The production of natural gas would follow current regulations and standards to dispose of produced water along with incorporating a wildlife escape ramp into a water disposal tank or pit. There would be no impact to the natural gas resource.

All standards for oil and gas reclamation currently meet or exceed the reclamation requirements under this alternative. There would be no impact to the natural gas resource.

Table 4.21
Oil and Gas Leases Affected by the Conditions of Approval – Alternative C

<i>Condition of Approval</i>	<i>West HiLine Leases</i>		<i>Non-West HiLine Leases</i>		<i>All Leases</i>	
	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>
Greater Sage-Grouse						
Lek			1	31	1	31
Nesting Area	5	1,276	10	4,498	15	5,774
Winter Habitat	3	441			3	441
Black-Tailed Prairie Dog	1	72			1	72
Designated Sensitive Species	1	3	6	532	7	535
Deer and Elk Winter Range	9	6,986	17	19,137	26	26,123
Antelope Crucial Winter Range	7	2,561	9	3,588	16	6,149
Bighorn Sheep Distribution	4	3,080	13	11,164	17	14,244
Bighorn Sheep Lambing	4	1,059	11	5,504	15	6,563
Streams & Riparian/Wetland Areas	11	4,339	25	12,171	36	16,510
Soils/Slopes						
20% & Severely Erodable	10	3,394	30	10,687	40	14,081
30%	10	1,683	29	5,352	39	7,035
40%	8	753	25	2,399	33	3,152
VRM Class						
Class I	2	108	10	2,828	12	2,936
Class II	11	7,438	30	25,137	41	32,575
Class III	7	2,782	12	4,512	19	7,294

Alternative D

Seismic – Seismic activity would be restricted to helicopter supported seismic activities and no surface blasting would be allowed. This would restrict the industry's ability to identify geologic features worthy of further exploration. If not allowed to use other seismic techniques, this may cause more impact than necessary.

Conditions of Approval – The conditions of approval would affect a portion of the oil and gas leases in the Monument (Table 4.22).

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – A condition of approval would prohibit adverse surface-disturbing activities within 1/4 mile of prairie dog towns. This would affect 72 acres of 1 West HiLine lease.

Designated Sensitive Species – A condition of approval would prohibit surface-disturbing activities within identified crucial habitat or within 1/4 mile of active nests. This

would affect 3 acres of 1 West HiLine lease and 532 acres (2%) of 6 non-West HiLine leases

The timing restriction from March 1 to August 1, within 1/2 mile of active nests would affect 71 acres (<1%) of 2 West HiLine leases and 2,118 acres (6.5%) of 9 non-West HiLine leases.

Bald Eagle – A condition of approval would prohibit surface disturbance within 1/2 mile of any nest that has been active within the last 7 years and within riparian nesting habitat. Currently, there are no known roosting or nesting sites within or near the existing oil and gas leases. There would be no impact to the natural gas resource.

Big Game Winter Range – A condition of approval would prohibit surface disturbance on identified winter ranges from December 1 to May 15. The timing restriction would affect 6,986 acres (68%) of 9 West HiLine leases in deer and elk winter range and 2,561 acres (25%) of 7 West HiLine leases in antelope crucial winter range. If the timing restriction is applied as a condition to the non-West HiLine leases, it would affect an additional 19,137 acres (59%) of 17 leases in deer and elk winter range and 3,588 acres of 9

Table 4.22
Oil and Gas Leases Affected by the Conditions of Approval – Alternative D

<i>Condition of Approval</i>	<i>West HiLine Leases</i>		<i>Non-West HiLine Leases</i>		<i>All Leases</i>	
	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>
Greater Sage-Grouse						
Lek			1	31	1	31
Nesting Area	5	1,276	10	4,498	15	5,774
Winter Habitat	3	441			3	441
Black-Tailed Prairie Dog	1	72			1	72
Designated Sensitive Species						
1/4 Mile	1	3	6	532	7	535
1/2 Mile	2	71	9	2,117	11	2,188
Deer and Elk Winter Range	9	6,986	17	19,137	26	26,123
Antelope Crucial Winter Range	7	2,561	9	3,588	15	6,149
Bighorn Sheep Distribution	4	3,080	13	11,164	17	15,202
Bighorn Sheep Lambing	4	3,192	12	10,358	15	13,550
Streams & Riparian/Wetland Areas	11	5,492	26	15,259	37	20,751
Soils/Slopes						
20% & Severely Erodable	10	3,394	30	10,687	40	14,081
30%	10	1,683	29	5,352	39	7,035
40%	8	753	25	2,399	33	3,152
VRM Class						
Class I	2	108	10	2,828	12	2,936
Class II	12	10,220	31	29,649	43	39,869

leases in antelope crucial winter range for a period of 166 days.

Bighorn Sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – Prohibiting surface disturbance within 1 mile of identified bighorn sheep lambing areas would affect 3,192 acres (31%) of 4 West HiLine leases and 10,358 acres (30%) of 12 non-West HiLine leases.

Streams – Surface disturbance would be prohibited within 1/4 mile of streams. This would affect 15,482 acres of 11 West HiLine leases and 15,259 acres of 26 non-West HiLine leases.

Soils/Slopes – Surface disturbance would be restricted on slopes over 30% or on slopes over 20% with severely erodible and slumping soils (requires an engineering and reclamation plan). Surface disturbance would be restricted on slopes 40% and greater. This would affect 3,394 acres of 10 West HiLine leases and 14,081 acres of 30 non-West HiLine leases. These acreage figures with slopes greater than 30% are incorporated in the acreage figure with slopes over 20% with severely erodible and slumping soils.

Visual Resources – Surface-disturbing activities may be prohibited in VRM Class I areas. This would affect 108 acres (1%) of 2 West HiLine lease and 2,828 acres (9%) of 10 non-West HiLine leases. A controlled surface use requirement for VRM Class II would affect 10,220 acres of 12 West HiLine leases and 29,649 acres of 31 non-West HiLine leases.

Drilling Operations – Based on the RFD and applying the conditions of approval, there would be the potential for 13 wells to be drilled on federal minerals in the Monument. There would also be the potential for 20 wells within 1/2 mile of the Monument on federal minerals.

This alternative would limit the number of wells allowed per section to the current spacing (one well per section in the Sawtooth Mountain Field and general statewide spacing and two wells per section in the Leroy Field).

This alternative may cause an increase in the costs for drilling operations with the requirement for minimal surface disturbance. Industry would probably consider low impact drilling technology or multiple wells from one location.

This alternative would allow for restricted access (types of vehicles and timing) to monitor wells and facilities. Requiring seasonal use would restrict the operators' ability to maintain secure and safe operations.

Production Facilities and Equipment – This alternative would cause an increase in costs to mitigate noise levels and abate emissions on gas compression facilities. Other requirements would create insignificant effects on the natural gas resource.

Pipelines would be required to stay within the existing disturbance or access road. The placement and construction of pipelines would follow standard operating procedures (Gold Book). This may cause an increase in costs of operations due to increased pipeline distances.

The production of natural gas would follow current regulations and standards to dispose of production water along with incorporating a wildlife escape ramp into a water disposal tank or pit. There would be no transporting of the water via tankers; however, an operator would have the option to dispose of the water via a pipeline, disposal pits (including tanks) or an approved water disposal well. This may cause an increase the costs of operations or a reduction in production.

Travel on designated roads would be restricted to the minimal vehicle needed for the job. Due to resource issues, timing restrictions may be applied to site visits. This could affect the operators' ability to access some existing and potential well locations.

All standards for oil and gas reclamation currently meet or exceed the reclamation requirements under this alternative. There would be no impact to the natural gas resource.

Alternative E

Seismic – Seismic activity would be restricted to helicopter supported seismic activities and no surface blasting would be allowed. This would restrict the industry's ability to identify geologic features worthy of further exploration. Not allowing these seismic techniques may cause more impact than necessary.

Conditions of Approval – Surface disturbance would be prohibited on all 12 West HiLine oil and gas leases. This would include the entire leasehold and would affect 10,328 acres in the Monument area and 2,454 acres outside the Monument.

The conditions of approval would affect the non-West HiLine oil and gas leases in the Monument (Table 4.23).

Greater Sage-Grouse – A condition of approval would be attached to each APD which would prohibit surface disturbance within 2 miles of sage-grouse leks. This would affect 4,498 acres of 10 non-West HiLine leases (13.9%).

Designated Sensitive Species – A condition of approval would prohibit surface-disturbing activities within identi-

fied crucial habitat or within 1/2 mile of active nests. This would affect 2,117 acres (6.5%) of 9 non-West HiLine leases.

Big Game Winter Range – A condition of approval would prohibit surface disturbances on identified winter range. This would affect 19,137 acres (59%) of 17 leases in deer and elk winter range and 9 leases in 3,588 acres of antelope crucial winter range.

Bighorn Sheep Distribution – A condition of approval would prohibit surface disturbances on identified bighorn sheep distribution. This would affect 12,122 acres (37%) of 13 non-West HiLine leases.

Bighorn Sheep Lambing Areas – Prohibiting surface disturbance within 1 mile of identified bighorn sheep lambing areas would affect 10,358 acres (30%) of 12 non-West HiLine leases.

Streams – Surface disturbance would be prohibited within 1/4 mile of streams. This would affect 15,259 acres of 26 non-West HiLine leases.

Soils/Slope – Surface disturbance would be restricted on slopes over 20%. This would affect 11,616 acres of 30 non-West HiLine leases.

Visual Resources – Surface-disturbing activities would be prohibited in VRM Class I and II areas. This would affect all non-West HiLine leases (32,477 acres).

Drilling Operations – Based on the RFD and applying the conditions of approval, there would be the potential for no future drilling on federal minerals in the Monument. While future drilling would not be reasonably foreseeable, the following analysis addresses potential effects if additional wells are drilled.

This alternative would reduce the number of wells drilled within the Leroy Field from two wells per section to one well per section.

This alternative may cause an increase in the costs for drilling operations with the requirement for minimal surface disturbance. Industry may consider low impact drilling technology or multiple wells from one location.

This alternative would allow for restricted access (types of vehicles and timing) to monitor wells and facilities. Requiring operators to acquire approvals to access their operations would restrict the operator’s ability to maintain secure and safe operations.

Production Facilities and Equipment – This alternative would increase costs to mitigate noise levels and abate emissions on gas compression facilities.

Pipelines would be required to stay within the existing disturbance or access road. The placement and construction of pipelines would follow standard operating procedures (Gold Book). This may increase the costs of operations due to increased pipeline distances.

The production of natural gas would follow current regulations and standards to dispose of produced water along with incorporating a wildlife escape ramp into a water disposal tank or pit. There would be no transporting of the water via tankers; however, the operator would have the option to dispose the water via a pipeline, disposal pits (including tanks) or dispose in a water disposal well. These requirements may cause an increase in costs of operations or a reduction in production.

Travel on designated roads would be restricted to the minimal vehicle needed for the job. Due to resource issues, timing restrictions may be applied to site visits. This would affect the operators’ ability to access some potential well locations.

All standards for oil and gas reclamation currently meet or exceed the reclamation requirements under this alternative. There would be no impact to the natural gas resource.

Alternative F (Preferred Alternative)

Seismic – Seismic activity would be restricted to designated roads with limited surface blasting. This would restrict the industry’s ability to identify geologic features

Table 4.23 Oil and Gas Leases Affected by the Conditions of Approval – Alternative E		
Condition of Approval	Non-West HiLine Leases	
	No.	Acres
Greater Sage-Grouse Lek/Nesting Area	10	4,497
Designated Sensitive Species Bald Eagle	9	2,117
Deer and Elk Winter Range	17	19,137
Antelope Crucial Winter Range	9	3,594
Bighorn Sheep Distribution	13	12,122
Bighorn Sheep Lambing	12	10,358
Streams & Riparian/Wetland Areas	26	15,259
Soils/Slopes 20%	30	11,616
VRM Class		
Class I	10	2,828
Class II	31	29,649

worthy of further exploration. Not allowing all seismic techniques may cause more impact than necessary.

Conditions of Approval – The conditions of approval would affect a portion of the oil and gas leases in the Monument (Table 4.24).

Greater Sage-Grouse – The impacts would be the same as Alternative B.

Black-Tailed Prairie Dogs – The impacts would be the same as Alternative D.

Designated Sensitive Species – Surface disturbance may be controlled or excluded within 1/4 mile of the proposed activity, or the activity could be delayed 90 days. Surface disturbance would be prohibited from March 1 to August 1 within 1/2 mile of ferruginous hawk nests. This would affect 3 acres of 1 West HiLine lease and 532 acres of 6 non-West HiLine leases.

Bald Eagle – The impacts would be the same as Alternative C.

Big Game Winter Range – The impacts would be the same as Alternative B.

Bighorn Sheep Distribution – The impacts would be the same as Alternative C.

Bighorn Sheep Lambing Areas – The impacts would be the same as Alternative B.

Streams – Surface disturbance would be prohibited within 500 feet of the channel of streams. This would affect 2,302 acres of 10 West HiLine leases and 6,618 acres (20%) of 25 non-West HiLine leases. However, oil and gas activities would be allowed within 500 feet of a stream as long as the ground surface of the site is 20 feet higher than the channel (out of the floodplain).

Soils – Surface disturbance would be restricted on slopes over 30% or on slopes over 20% with severely erodible and slumping soils (requires an engineering and reclamation plan). Surface disturbance would be restricted on slopes 40% and greater. This would affect 3,394 acres of 10 West HiLine leases and 14,081 acres of 30 non-West HiLine

Table 4.24
Oil and Gas Leases Affected by the Conditions of Approval
Alternative F (Preferred Alternative)

<i>Condition of Approval</i>	<i>West HiLine Leases</i>		<i>Non-West HiLine Leases</i>		<i>All Leases</i>	
	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>	<i>No.</i>	<i>Acres</i>
Greater Sage-Grouse						
Lek			1	31	1	31
Nesting Area	5	1,276	10	4,498	15	5,774
Winter Habitat	3	441			3	441
Black-Tailed Prairie Dog	1	72			1	72
Designated Sensitive Species	1	3	6	532	7	535
Deer and Elk Winter Range	9	6,986	17	19,137	26	26,123
Antelope Crucial Winter Range	7	2,561	9	3,588	15	6,149
Bighorn Sheep Distribution	4	3,080	13	11,164	17	14,244
Bighorn Sheep Lambing	4	1,059	11	5,504	15	6,563
Streams & Riparian/Wetland Areas	10	2,302	25	6,619	35	8,921
Soils/Slopes						
20% & Severely Erodible	10	3,394	30	10,687	40	14,081
30%	10	1,683	29	5,352	39	7,035
40%	8	753	25	2,399	33	3,152
VRM Class						
Class I	2	108	10	2,828	9	2,936
Class II	11	7,438	30	25,137	41	32,575
Class III	5	1,520	9	2,520	14	4,040
Class IV	7	1,262	8	1,992	15	3,254

leases. These acreage figures with slopes greater than 30% are incorporated in the acreage figure with slopes over 20% with severely erodable and slumping soils.

Visual Resources – Surface-disturbing activities may be prohibited in VRM Class I areas. This alternative would affect 108 acres (1%) of 2 West HiLine leases and 2,828 acres (9%) of 10 non-West HiLine leases. A controlled surface use requirement for VRM Class II, Class III and Class IV would affect 10,220 acres of West HiLine leases and 29,649 acres of non-West HiLine leases.

Drilling Operations – Based on the RFD and applying the conditions of approval, there would be the potential for 34 wells to be drilled on federal minerals in the Monument. There would also be the potential for 21 wells within 1/2 mile of the Monument on federal minerals.

This alternative may cause an increase in the costs for drilling operations with the requirement for minimal surface disturbance. Industry may consider low impact drilling technology or multiple wells from one location.

Production Facilities and Equipment – This alternative would increase the costs to mitigate noise levels and abate emissions on gas compression facilities.

The production of natural gas would follow current regulations and standards to dispose of produced water along with incorporating a wildlife escape ramp into a water disposal tank or pit. There would be no impact to the natural gas resource.

Pipelines would be required to stay within existing disturbance or in the least intrusive location. The placement and construction of pipelines would follow standard operating procedures (Gold Book). This may increase the costs of operations due to increased pipeline distances.

Travel on designated roads would be restricted to the minimal vehicle needed for the job. Due to resource issues, timing restrictions may be applied to site visits. This would affect the operators' ability to access some potential well locations.

All standards for oil and gas reclamation currently meet or exceed the reclamation requirements under this alternative. There would be no impact to the natural gas resource.

Impacts to Minerals – Oil and Gas from Access and Transportation

Access

Alternatives A (Current Management) and B

Allowing public access on new resource roads used for natural gas operations would not affect natural gas operations. However, safety and security issues would increase when the public is allowed to access natural gas operations.

Alternatives C, D, E, and F (Preferred Alternative)

Restricting public access would create a positive impact for natural gas operations. Safety and security issues would be minimized.

Summary of Cumulative Impacts to Minerals – Oils and Gas

Cumulative impacts are illustrated by using the RFD wells in conjunction with the six alternatives. Each alternative presents varying degrees of restriction. Alternative A represents current management and it is second to least restrictive of the six alternatives. Alternative B represents the least restrictive alternative toward natural gas operations and allows the most development activity. Alternative E is very restrictive toward natural gas activity and basically stops further exploration and development from occurring in the Monument. Alternative F (Preferred Alternative) allows natural gas development to continue; however, at reduced levels from current management. Table K.1-2 in Appendix K presents the effects for each alternative.

Alternative A (Current Management)

Economics and market factors influence the rate and extent of natural gas exploration and development. Land use restrictions result in higher costs, and therefore may influence the rate of resource exploration and development. This alternative would allow natural gas exploration and development activity to occur at similar levels as prior to Monument designation. Natural gas exploration and development would occur over most of the leased area due to accessibility and restrictions.

Under this alternative, 35 wells could be drilled in the Monument along with another 21 wells within 1/2 mile of the Monument. A total of 56 wells could be drilled on federal leases within the next 15-20 years in the area. Another five wells could be drilled on state or fee minerals within 1/2 mile of the Monument. With a success rate of 35% throughout the area, and an average estimated ultimate

recovery of 390,000 MCF per well, this alternative could allow an additional 8.3 billion cubic feet (BCF) of gas to be produced; a 15% decrease from Alternative B.

Alternative B

Economics and market factors influence the rate and extent of natural gas exploration and development. Land use restrictions result in higher costs, and therefore influence the rate of resource exploration and development. This alternative would allow natural gas exploration and development activity to occur at similar or higher levels than current management. Exploration and development would occur over most of the leased area due to accessibility and restrictions.

Under this alternative, 44 wells could be drilled in the Monument along with another 23 wells within 1/2 mile of the Monument. A total of 67 wells could be drilled on federal leases within the next 15-20 years in the area. Another five wells could be drilled on state or fee minerals within 1/2 mile of the Monument. With a success rate of 35% throughout the area, and an average estimated ultimate recovery of 390,000 MCF per well, this alternative could allow an additional 9.8 BCF of gas to be produced.

Alternative C

Under this alternative, further land use restrictions and potential increased costs could cause moderately less activity and therefore less exploration and development. Natural gas exploration and development would occur over much of the leased area due to accessibility and restrictions, but less than Alternative A.

Under this alternative, 28 wells could be drilled in the Monument along with another 21 wells within 1/2 mile of the Monument. A total of 49 wells could be drilled on federal leases within the next 15-20 years in the area. Another five wells could be drilled on state or fee minerals within 1/2 mile of the Monument. With a success rate of 35% throughout the area and an average estimated ultimate recovery of 390,000 MCF per well, this alternative could allow an additional 7.4 BCF of gas to be produced; a 25% decrease from Alternative B.

Alternative D

There would be moderate to high impacts on the production of natural gas. Additional land use restrictions and potential increased costs could cause less activity and therefore less exploration and development. Natural gas exploration and development would be almost half of the activity allowed with Alternative B.

Under this alternative, 13 wells could be drilled in the Monument along with another 20 wells within 1/2 mile of the Monument. A total of 33 wells could be drilled on federal leases within the next 15-20 years in the area. Another five wells could be drilled on state or fee minerals within 1/2 mile of the Monument. With a success rate of 35% throughout the area and an average estimated ultimate recovery of 390,000 MCF per well, this alternative could allow an additional 5.2 BCF of gas to be produced; a 47% decrease when compared to Alternative B.

Alternative E

This alternative would be the most restrictive concerning production of natural gas.

Under this alternative, no wells would be drilled in the Monument but 18 wells could be drilled on federal leases within 1/2 mile of the Monument within the next 15-20 years. Another five wells could be drilled on state or fee minerals within 1/2 mile of the Monument. With a success rate of 35% throughout the area and an average estimated ultimate recovery of 390,000 MCF per well, this alternative could allow an additional 3.1 BCF of gas to be produced; a 68% decrease from Alternative B.

Alternative F (Preferred Alternative)

The impacts on the production of the natural gas resource would be moderate under this alternative. Restrictions and increased costs could cause less exploration and development activity. Natural gas production could occur over much of the leased area due to accessibility and restrictions, but less than Alternatives A and B.

Under this alternative, 34 wells could be drilled in the Monument along with another 21 wells within 1/2 mile of the Monument. A total of 55 wells could be drilled on federal leases within the next 15-20 years in the area. Another five wells could be drilled on state or fee minerals within 1/2 mile of the Monument. With a success rate of 35% throughout the area and an average estimated ultimate recovery of 390,000 MCF per well, this alternative could allow an additional 8.2 BCF of gas to be produced; a 16% decrease from Alternative B.

Recreation

Impacts to Recreation from Health of the Land and Fire

Fish and Wildlife – Mitigation

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Mitigation measures may maintain or increase opportunities for watchable wildlife viewing. However, seasonal restrictions for surface-disturbing activities may reduce or eliminate opportunities for recreation site development or activities with concentrated numbers of users.

Vegetation

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Solar pumps and fence enclosures would help maintain and improve riparian conditions for camping and other recreation activities.

Depending on facility location, solar pumps and fence enclosures used for riparian habitat protection and enhancement in VRM Class I areas may detract from the primitive character of the landscape and may not always conform with Class I guidelines.

Restoration initiatives may improve surface-disturbed areas in recreation sites.

Forest Products

Alternative A (Current Management)

Some areas of the Monument may be designated for personal use to cut Christmas trees, post and poles, firewood or logs.

Alternatives B and C

Areas may be designated for personal use to cut Christmas trees, post and poles, firewood or logs.

Alternative D

Areas may be designated for personal use to cut Christmas trees and firewood. With a permit, individuals would be allowed to utilize materials from wildland fires.

Alternative E

There would be no personal use of forest products.

Alternative F (Preferred Alternative)

Areas may be designated for personal use to cut Christmas trees and firewood. With a permit, individuals would be allowed to utilize materials from wildland fires.

Wild and Scenic Rivers

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

There would be no impact, as there would be no changes to the management of BLM land that would affect recreation resources.

Impacts to Recreation from Visitor Use, Services and Infrastructure

Recreation

Alternative A (Current Management)

Fees – Campers staying at the James Kipp Recreation Area would continue paying a \$6 per vehicle/per night fee which has been in place since 1997. No other fees would be charged within the Monument.

Gateway Communities – Concession of facilities would provide economic opportunities for private businesses. In some cases, concession of facilities or services may provide visitor services not otherwise provided with BLM management of a site. Concession of sites may also instigate communication problems or create barriers inhibiting direct public feedback to the BLM when issues or concerns arise regarding site management.

Research, Collection, and Special Events – Special Recreation Permits (SRPs) for large events would ensure activities occur within parameters designed to protect the objects for which the Monument was designated and the experience of other BLM land users. Stipulations in the permit may inhibit some individual and group activities and opportunities.

Visitors wishing to use a metal detector would not have the opportunity to do so without first applying for and receiving a permit. Spontaneity to participate in activities involving a metal detector would be eliminated.

Collecting/removing invertebrate fossils and petrified wood may reduce opportunities for other BLM land users to observe similar natural history objects.

Archaeological and paleontological investigation and research may benefit science and provide opportunities for education and natural history observation. Removing re-

search findings may detract from the integrity of the Monument.

Recreation in Sensitive Wildlife Habitat – Horn hunting is a widespread activity that many visitors participate in. Under this alternative, opportunities for this activity would be unrestricted.

Camping on islands would be discouraged, but not restricted under this alternative. Boaters could camp on islands during critical wildlife nesting periods.

Interpretive Sites – Cultural and geological interpretation may occur under this alternative but the level is uncertain.

Alternative B

Fees – There would be no fees charged in the Monument. An \$11,000 cleaning contract for the James Kipp Recreation Area may not be renewed. If not, at least one additional BLM maintenance employee would be needed to complete year around work currently performed by a local contractor. The loss of fee income may result in a seasonal closure of the campground, loss of the hosts staffing the site and elimination of trash dumpsters at the site.

Fee-generated income accounted for 24% of the total operational recreation budget allocated for management of the 149-mile UMNWSR in Fiscal Year 2005. This money was used to pay for the James Kipp Recreation Area cleaning contract, maintaining 21 vault toilets located between Fort Benton and the James Kipp Recreation Area, and providing service for trash dumpsters located at Coal Banks Landing, Judith Landing and the James Kipp Recreation Area. These amenities could be eliminated under this alternative.

Gateway Communities – Staffed sites in gateway communities may provide tourism-related economic opportunities. Visitors stopping for information may spend more time in the town than they otherwise might. Staffed sites would benefit visitors seeking information prior to entering BLM land. Informed users may exhibit a higher level of concern and appreciation for private and BLM land and compliance with rules and regulations may increase.

Research, Collection, and Special Events – SRPs for large events would ensure activities occur within parameters designed to protect the objects for which the Monument was designated and the experience of other BLM land users. Stipulations in the permit may inhibit some individual and group activities and opportunities.

Visitors would have the ability to use metal detectors, in some areas, without the restriction of a permit.

Collecting/removing invertebrate fossils and petrified wood may reduce opportunities for other BLM land users to observe similar natural history objects.

Archaeological and paleontological investigation and research may benefit science and provide opportunities for education and natural history observation. Removal of research findings may detract from the integrity of the Monument.

Recreation in Sensitive Wildlife Habitat – Horn hunting is a widespread activity that many visitors participate in. Opportunities for this activity would be unrestricted.

Boaters would not be discouraged from camping on islands. Their freedom to access campsites of their choice on islands would be unrestricted.

Interpretive Sites – This alternative would provide the most opportunities for cultural and geological interpretation. The potential for visual impacts from signs and exhibits viewable by boaters from the UMNWSR would also be the greatest. Small signs, not viewable from roads or the river, would provide some opportunity for interpretation and would also protect the primitive nature of the area from visual impacts.

Alternative C

Fees – The proposed fee under this alternative would not affect BLM land users in the Monument unless they camped overnight at a Level 1 site. An expanded amenity fee would be charged to camp at Wood Bottom, Coal Banks Landing, Judith Landing, and the James Kipp Recreation Area.

Visitors to Wood Bottom are typically seeking a quiet out-of-the-way spot to tent camp or park their RV or trailer and spend a weekend fishing or just relaxing next to the river. Many seek out this spot because there is minimal development and no fee. Charging a fee may displace many of the overnight users currently using the site.

Coal Banks Landing is the primary put-in point for river trips through the White Cliffs section of the river, and boaters are the primary overnight campers. There were 259 groups for a total of 1,218 people camped overnight in 2004. Approximately this number of visitors could be financially impacted by the fee.

The primary camper at Judith Landing is one who drives in specifically to camp in an RV or tent, but is not necessarily associated with launching a boat or participating on a trip down the river. Many of the campers are from the local area and come to Judith Landing to participate in annual gatherings or traditional weekend outings. They have never paid a fee for overnight camping at this site in the past. In addition, a small percentage of boaters going from Coal Banks Landing to the James Kipp Recreation Area stop and camp overnight at Judith Landing. Both groups of campers would be financially impacted by the fee.

Gateway Communities – Staffed sites in gateway communities may provide tourism-related economic opportunities. Visitors stopping for information may spend more time in the town than they otherwise might. Staffed sites would benefit visitors seeking information prior to entering public lands. Informed users may exhibit a higher level of concern and appreciation for private and public lands and compliance with rules and regulations may increase.

Research, Collection, and Special Events – Special events and large groups would not be assured an SRP under this alternative. Authorization would be on a case-by-case basis, and may be denied if the impacts from activities were deemed unacceptable.

Visitors would have ability to use metal detectors, in some areas, without the restriction of a permit.

Collecting/removing invertebrate fossils and petrified wood may reduce opportunities for other public land users to observe similar natural history objects.

Archaeological and paleontological investigation and research may benefit science and provide opportunities for education and natural history observation. Removing research findings may detract from the integrity of the Monument.

Recreation in Sensitive Wildlife Habitat – Horn hunters would have fewer opportunities under this alternative than they would under Alternatives A or B.

Boaters would not be discouraged from camping on islands. Their freedom to access campsites of their choice on islands would be unrestricted.

Interpretive Sites – The cultural and geological significance of the area attracts visitors to float the river. Providing low-key signs, not visible from the river would provide opportunities for information and education without disturbing the scenic character of the UMNWSR. However, visitors could lose some opportunities to see cultural interpretation on site and would be required to obtain guidebooks prior to beginning their trip or activity.

Alternative D

Fees – Fees would be charged at Level 1 sites with impacts the same as described in Alternative C.

In addition, boaters using the Missouri River between Fort Benton and the James Kipp Recreation Area would be required to register, acquire a Special Recreation Permit and pay the associated fee. Approximately 6,000 people register each year to boat the river.

In a 2001 visitor use survey, boaters on the Missouri River were asked if they would rather pay a fee to improve facilities or leave them as they are. Thirty-eight percent indicated they would rather pay a fee and 39% said they would rather not pay a fee and facilities be left as they are. Visitors were also asked about their household annual income. Forty-two percent indicated they earned more than \$70,000 per year, 15% earned \$60,000 to \$69,000 per year, 9% earned \$50,000 to \$59,000, 12% earned \$40,000 to \$49,000 and 19% earned less than \$40,000 per year. A fee to boat the river may have a financial impact, in varying degrees, on visitors using the river, and approximately half of all visitors may not support the fee system.

The income generated by this fee would enhance the BLM's ability to maintain facilities and services on the UMNWSR, enhance weed control efforts, provide funds to purchase short-term campsite leases, and assist local ambulance services and county search and rescue efforts.

Gateway Communities – Staffed sites in gateway communities may provide tourism-related economic opportunities. Visitors stopping for information may spend more time in the town than they otherwise might. Staffed sites would benefit visitors seeking information prior to entering BLM land. Informed users may exhibit a higher level of concern and appreciation for private and BLM lands and compliance with rules and regulations may increase.

Research, Collection, and Special Events – Special events and large groups would not be assured an SRP under this alternative. Authorization would be on a case-by-case basis, and may be denied if impacts from activities are deemed unacceptable.

Visitors would have ability to use metal detectors in some areas without a permit.

Collecting/removing invertebrate fossils and petrified wood may reduce opportunities for other public land users to observe similar natural history objects.

Archaeological and paleontological investigation and research may benefit science and provide opportunities for education and natural history observation. Removing research findings may detract from the integrity of the Monument.

Recreation in Sensitive Wildlife Habitat – Horn hunters would have fewer opportunities than in Alternatives A, B, and C as the seasonal restriction would occur when conditions for accessing BLM land would be the most favorable.

Under this alternative, boaters would be restricted seasonally (April 1 to July 31) from camping on islands. Most of the islands suitable for camping are located between Fort

Benton and Coal Banks Landing, and below Cow Island. Approximately 75% of the overnight use occurs between Coal Banks and Judith Landing where there are few islands suitable for camping. Boaters would have the opportunity to camp on islands prior to April 1 and after July 31.

Interpretive Sites – The cultural and geological significance of the area attracts visitors to float the river. Providing low-key signs, not visible from the river would provide opportunities for information and education without disturbing the scenic character of the UMNWSR. However, visitors could lose some opportunities to see cultural interpretation on site and would be required to obtain guidebooks prior to beginning their trip or activity.

Alternative E

Fees – Fees would be charged at Level 1 sites with impacts the same as described in Alternative C.

In addition, boaters using the Missouri River between Fort Benton and the James Kipp Recreation Area would be required to register, acquire a Special Recreation Permit and pay the associated fee. Approximately 6,000 people register each year to boat the river.

The income generated by this fee would enhance the BLM's ability to maintain facilities and services on the UMNWSR, enhance weed control efforts, provide funds to purchase short-term campsite leases, and assist local ambulance services and county search and rescue efforts.

Gateway Communities – The BLM would provide visitor information to local communities for educational and interpretative experiences.

Research, Collection, and Special Events – Large groups would not be authorized for activities within the Monument. Metal detectors would not be allowed. Invertebrates and fossils would remain intact and protected from removal. Research and investigations would not be allowed.

Recreation in Sensitive Wildlife Habitat – Opportunities for horn hunting would be eliminated under this alternative.

Camping on islands would not be allowed. This would protect nesting wildlife, but would reduce camping opportunities for boaters.

Interpretive Sites – This alternative does not provide an opportunity for cultural and geological information and education.

Alternative F (Preferred Alternative)

Fees – Fees would be charged at Level 1 sites and the impacts would be the same as described in Alternative C. In

addition to the expanded amenity fee sites listed in Alternative C, fees would also go toward maintenance of cabins and corrals in the uplands.

Boaters using the Missouri River between Fort Benton and the James Kipp Recreation Area would be required to register, acquire a Special Recreation Permit and pay the associated fee. Approximately 6,000 people register each year to boat the river.

The income generated by this fee would enhance the BLM's ability to maintain facilities and services in the UMNWSR, maintain cabins and corrals, enhance weed control efforts, provide funds to purchase short-term campsite leases and would assist local ambulance services and county search and rescue efforts.

Gateway Communities – Staffed sites in gateway communities could provide tourism-related economic opportunities. Visitors stopping for information may spend more time in the town than they otherwise might. Staffed sites would benefit visitors seeking information prior to entering public lands. Informed users may exhibit a higher level of concern and appreciation for private and public lands and compliance with rules and regulations may increase.

Research, Collection, and Special Events – Visitors wishing to use a metal detector would not have the opportunity to do so without first applying for and receiving a permit. Spontaneity to participate in activities involving a metal detector would be eliminated.

Special events and large groups would not be assured an SRP under this alternative. Authorization would be on a case-by-case basis, and may be denied if impacts from activities are deemed unacceptable.

Archaeological and paleontological investigation and research may benefit science and provide opportunities for education and natural history observation. Removing research findings may detract from the integrity of the Monument.

Concentrated collection of plant material may lead to overharvesting in some areas.

Recreation in Sensitive Wildlife Habitat – Horn hunting is a widespread activity that many visitors participate in. Opportunities for this activity would be unrestricted, unless harassment or disturbance of wildlife would require implementing a seasonal restriction.

Under this alternative, boaters would be restricted seasonally (April 1 to July 31) from camping on islands. Most of the islands suitable for camping are located between Fort Benton and Coal Banks Landing, and below Cow Island. Approximately 75% of the overnight use occurs between

Coal Banks and Judith Landing where there are few islands suitable for camping. Boaters would have the opportunity to camp on islands prior to April 1 and after July 31.

Interpretive Sites – The cultural and geological significance of the area attracts visitors to float the river. Providing low-key signs, not visible from the river would provide opportunities for information and education without disturbing the scenic character of the UMNWSR. However, visitors could lose some opportunities to see cultural interpretation on site and would be required to obtain guidebooks prior to beginning their trip or activity.

Upper Missouri River Special Recreation Management Area

Alternative A (Current Management)

Special Recreation Use Permits – Limiting the number of SRPs issued for commercial floating/boating on the Missouri River at 23 would reduce opportunities for additional commercial use. During the past 3 years, nine additional commercial operators have expressed interest in applying for such a permit. While the number of permits is limited at 23, user days are not and commercial users can run as many trips as demand and staffing would allow. However, limiting the number of permits ensures new commercial operators would not add to the issues of campsite competition, conflicts with private boaters, and social and resource impacts. Commercial use went from 17% in 1997, to 31% in 2004.

One-time permits would allow universities and other groups that meet the definition of commercial use an opportunity to float/boat the Missouri River.

Opportunities for Boaters – River use is assumed to increase at a rate of 5% per year. With that assumption, use could reach 10,251 registered boaters per year by 2015. This increase in use may also increase sight and sound conflicts leading to reduced opportunities for a primitive experience on the river, greater trampling of vegetation at campsites, and greater competition for campsites, especially at high use sites such as Eagle Creek and Slaughter River.

This alternative would provide an opportunity for large groups to float the river without special restrictions, unless they have more than 50 people, at which point an SRP would be required. Groups of 50 detract from the primitive experience boaters seek on the Missouri River. Opportunities for sight and sound conflicts on the river and in campsites increase with group size. In 2004, most boaters preferred smaller groups with 87.5% traveling in groups of 10 or less, and 62.3 % in groups of four or less. Large groups tend to string out rather than stay in a compact flotilla. This

tendency generally creates more sight and sound conflicts than a smaller, compact group. A large group could encompass 1/4 mile or more of the river when large gaps occur between individuals in the party. Impacts to campsites increase with group size, especially in the primitive Level 3 and 4 sites. Large groups may cause greater soil compaction, trample more vegetation and leave higher concentrations of human waste at Level 3 and 4 sites. Larger groups may also increase competition for campsites during busy periods by spreading out and encompassing multiple sites rather than staying contained in one site.

Camping Facilities – Facility development (Level 1, 2 or 3 sites) could occur on any section of the river if certain criteria are met. Visual impacts from additional signs and facilities could detract from the primitive nature of the UMNWSR.

Under current management, signs could be erected anywhere along the UMNWSR for any purpose. Signs would have the potential to detract from the visual quality and primitive setting of the UMNWSR.

Motorized Watercraft – The Missouri River is divided into three distinct areas of recreational opportunity: the upper river, White Cliffs and lower river sections. Under current management, the upper river section provides the least opportunity for solitude and a primitive experience. The White Cliffs section provides additional opportunities for solitude and a primitive experience, and the lower river section provides the greatest opportunity for solitude and a primitive experience. Depending on the type of opportunity desired, a boater may choose one or a combination of segments for their trip. The opportunity for motorized or non-motorized use, in combination with other factors, may influence a boater's choice.

River Mile 0 to 52 - Recreation Classification – Upstream and downstream travel would be allowed and would ensure an opportunity for visitors preferring to use motorboats to recreate on the Missouri River. Motorboats are currently used on a frequent basis in this segment for fishing and hunting. Non-motorized boaters using this segment of the river may be impacted by the sight, sound and smell of motorized craft. Most of the motorboat use occurs in the spring and fall when floater numbers are lowest. In 2004, 21.4 % of all registered boaters used this section of river. This section has fewer boaters as compared to the White Cliffs section, there is mostly private land with ranches and power lines visible along the shore and is classified as recreational in the wild and scenic river system.

Personal watercraft (PWC) use tends toward high speed play with associated noise levels that greatly annoy most other boaters and that are different in pitch and volume than other motorized craft. Their potential frequency and prox-

imity to other boaters, coupled with high pitched noise levels, impacts the experience most other boaters wish to enjoy.

River Mile 52 to 84.5 - Wild Classification – The White Cliffs section would provide boaters an opportunity to experience a more primitive setting than they might in the upper river section. The White Cliffs section contains four developed boater camps, and 78% of all boaters on the Missouri River travel this stretch of river. While this is classified as a wild segment of the river, the current level of facility development and current level of visitor use create a setting generally compatible with restricted motorized use (downstream travel only at a no-wake speed). The seasonal restriction on motorized use (the Saturday before the observed Memorial Day through the Sunday after Labor Day) would still allow for motorized travel in both directions during the shoulder seasons (generally the fishing and hunting seasons).

Boaters using this section of the river may be impacted by the sight, sound and smell of motorized craft, even when coming downstream at a no-wake speed, and it may detract from the primitive experience they desire.

Motorboat users would be restricted from the freedom of traveling in both directions during the no-wake timeframe. However, they would have access to the White Cliffs section and a primitive setting opportunity. Anglers and other motorized boat users would not have the opportunity to launch from Judith Landing (river mile 88.5) and come upstream beyond river mile 84.5, or launch from Coal Banks Landing (river mile 41.5) and go downstream beyond river mile 52.

River Mile 84.5 to 92.5 - Recreation Classification – Anglers and other motorized boaters would have the year-round opportunity to launch from Judith Landing (river mile 88.5) and come upstream to river mile 84.5, or launch from Coal Banks Landing (river mile 41.5) and go downstream to river mile 52.

Floaters coming through the White Cliffs section may be impacted by motorized craft going in both directions at plane speeds. Impacts could include visual disturbance, waves generated by boats operated at plane speeds and noise.

River Mile 92.5 to 149 - Combination of Wild and Scenic Classifications – This section of the river would provide visitors the greatest opportunity to experience solitude and the primitive nature of the UMNWSR. Unlike the White Cliffs section, this section has just one Level 2 site, which is located at river mile 131. In 2004, 21.5% of registered boaters (1,294 people) boated through this section of the river, as compared with 78% (4,682 people) in the White Cliffs segment.

The seasonal restriction on motorized use (the Saturday before the observed Memorial Day through the Sunday after Labor Day) would allow for motorized travel in both directions during the shoulder seasons (generally the fishing and hunting seasons) and downstream, no-wake travel during the restricted period. Floaters may be impacted by motorized craft going in both directions at plane speeds during the shoulder seasons. Impacts could include visual disturbance, waves generated by boats operated at plane speed and noise. Boaters using this section of the river during the restricted timeframe may be impacted by the sight, sound and smell of motorized craft (even when coming downstream at a no-wake speed) and it may detract from the primitive experience they desire. Bowhunters seeking a quiet atmosphere during their elk hunt may be impacted by the noise of motorboats traveling at plane speed in both directions.

The use of motorized craft by the general public would be restricted to downstream travel only at a no-wake speed from the Saturday before the observed Memorial Day to the Sunday after Labor Day. The majority of complaints about motorized use during the seasonal restriction period stem from administrative use of motorized craft. Administrative use occurs across a broad spectrum of resource management needs and includes motorboat use for research, law enforcement, ranchers accessing grazing allotments, and BLM recreation, weed, range and riparian specialists. Under this alternative, administrative use of motorboats would not be restricted.

In the past 5 years there has been no BLM-documented case of a floatplane landing on any section of the river outside of the Fort Benton area. Floatplanes and their associated noise levels may impact the experience most boaters wish to enjoy, although the noise and visual impact from a floatplane would be better tolerated in the recreational segments where motorized boat use is allowed year around.

Alternative B

Special Recreation Use Permits – Issuing unlimited SRPs for commercial use could increase competition for campsites, increase conflicts with private boaters and increase social and resource impacts. The registered boaters accompanying a commercial outfitter increased 8.2% between 2000 (the year the moratorium began) and 2004. Further, there is a difference of 903 registered boaters when comparing 2004 visitor use totals with 2000 totals. Of the 903 additional boaters, 705, or 78%, were boaters accompanying a commercial outfitter. During the past 3 years, nine additional commercial operators have expressed interest in acquiring an SRP for the Missouri River. Subsequently, based on 2000-2004 boater registration data and the number of potential commercial operators, visitor use on the Missouri River would be more likely to increase from commercial use than from private use.

Opportunities for Boaters – River use is assumed to increase at a rate of 5% per year. With that assumption use could reach 10,251 registered boaters per year by 2015. This increase in use may also increase sight and sound conflicts leading to reduced opportunities for a primitive experience on the river, greater trampling of vegetation at campsites, and greater competition for campsites, especially at high use sites such as Eagle Creek and Slaughter River.

Impacts would be similar, but more extensive than in Alternative A as opportunities for groups over 50 people would be unlimited. Opportunities for solitude would be reduced and competition for campsites would be increased, especially at popular sites such as Eagle Creek and Slaughter River.

Camping Facilities – Facility development (Level 1, 2 or 3 sites) could take place on any section of the river as needed. Appropriate signing could be used at any level of facility development. Visual impacts from additional signs and facilities could detract from the primitive nature of the UMNWSR.

Motorized Watercraft

River Mile 0 to 52 - Recreation Classification – Upstream and downstream travel would be allowed and would ensure an opportunity for visitors preferring to use motorboats to recreate on the Missouri River. Motorboats are currently used on a frequent basis in this segment for fishing and hunting. Non-motorized boaters using this segment of the river may be impacted by the sight, sound and smell of motorized craft.

River Mile 52 to 84.5 - Wild Classification – Motorboat users would have the opportunity to travel upstream and downstream throughout the year in this segment. Boaters using this segment of the river may be impacted by the sight, sound and smell of motorized craft and it may detract from the primitive experience they desire. Float boaters would not have the opportunity to enjoy a primitive setting free from the sound and visual impacts of motorboats on plane as compared to Alternative A. Floaters coming through the White Cliffs section may be impacted by motorized craft going in both directions at plane speeds. Impacts could include visual disturbance, waves generated by boats operated at plane speed and noise.

River Mile 84.5 to 92.5 - Recreation Classification – Anglers and other motorized boaters would have the opportunity to launch from Judith Landing (river mile 88.5) and travel upstream to river mile 84.5 or travel downstream to river mile 92.5 year round.

River Mile 92.5 to 149 - Combination of Wild and Scenic Classifications – Motorboat users would have the opportunity

to travel upstream and downstream throughout the year in this segment. Floaters using this segment of the river may be impacted by the sight, sound and smell of motorized craft and it may detract from the primitive experience they desire. Float boaters would not have the opportunity to enjoy a primitive setting free from the sound and visual impacts of motorboats on plane as compared to Alternative A.

Under this alternative, administrative use of motorboats would not be restricted.

Opportunities for PWC and floatplanes to access the UMNWSR would be increased compared to current management. PWC or floatplanes and their associated noise levels may impact the experience of most other boaters. Floatplanes may impact the quiet, primitive setting the wild and scenic classified segments offer visitors, and those seeking a primitive experience may be disrupted by the approach, landing and takeoff of a floatplane.

Alternative C

Special Recreation Use Permits – An additional seven permits beyond the current level of 23 would be allowed. Seven additional operators could increase competition for campsites and conflicts with private boaters.

Opportunities for Boaters – Standards and indicators would be used to manage use opportunities. Indicators reflect the overall condition of a specific segment of river and standards reflect the minimum acceptable conditions for each indicator. Management actions would be implemented to ensure standards are not exceeded. Under this alternative, allocation of visitors would not be a management option. As visitor use patterns change or numbers increase, additional restrictions on boaters would be implemented to maintain the standard. Use levels could be exceeded under this alternative to a point where restrictions on boaters would be insufficient to maintain the standards. This alternative provides an opportunity for boaters to continue using the river without the encumbrance of an allocation system. This would allow the public access to the resources of the Missouri River without competition. Within the framework of required visitor use restrictions, boaters could access the river when they choose.

Historically Sunday, Monday and Tuesday are the busiest launch days on the river, and June 15 to August 1 is the busiest portion of the river season. During that portion of the season, groups of 20 or more would be restricted to the historically slower launch days of Wednesday, Thursday and Friday which may cause logistical inconvenience for those groups. Groups of 20 or larger could still launch unrestricted before June 15 and after August 1. Groups of less than 20 (96.5% of groups in 2004) may have greater opportunity for solitude on the river and in campsites. River

use may also be spread more evenly through the week. Boaters who purposefully seek slower weekdays to launch may be subjected to larger groups and more people than under Alternatives A and B.

Camping Facilities – Level 1 site construction would take place only in recreational sections of the river. Additional Level 2 site construction may occur between Fort Benton and Judith Landing. This section currently has four Level 2 sites and receives approximately 75% of the total boater use. Additional Level 2 sites could detract from the primitive nature of the river in this section.

The length of stay requirement at Level 2 sites from June 15 to August 1 would provide more camping opportunities during the busiest portion of the river season. Those choosing to camp in primitive settings, free of development, would require additional equipment for camp fires and knowledge of Leave No Trace camping. Additional education efforts may be required for boaters seeking a Level 4 camping experience.

Signs would be carefully managed to ensure the visual quality and primitive setting of the UMNWSR is not diminished. Those seeking Level 4 camping opportunities must rely on map reading skills and be willing to seek and explore to locate a site.

Motorized Watercraft

River Mile 0 to 52 - Recreation Classification – Upstream and downstream travel would be allowed and would ensure an opportunity for visitors preferring to use motorboats to recreate on the Missouri River. Motorboats are currently used on a frequent basis in this section for fishing and hunting. Non-motorized boaters using this section of the river may be impacted by the sight, sound and smell of motorized craft and it may detract from their trip.

Opportunities for using PWC and landing floatplanes would be greatly diminished as compared with Alternative A. PWC are rarely seen on this section of the Missouri River.

River Mile 52 to 84.5 - Wild Classification – The White Cliffs section provides boaters an opportunity to experience a more primitive setting than they might in the upper river section. The White Cliffs section contains four developed boater camps, and 78% of all boaters on the Missouri River travel this stretch of the river. While this is classified as a wild segment of the river, current levels of facility development and visitor use create a setting generally compatible with restricted motorized use (downstream travel only at a no-wake speed).

The seasonal restriction on motorized use (June 15-September 15) would allow 10 days of additional motorized travel in both directions as compared to Alternative A. The

time period from June 5 to June 15, would provide additional opportunities for anglers or other motorized boaters to access this section by motorized craft. June 15 to August 1, is considered the busiest portion of the season; however, the number of river floaters begins to increase following Memorial Day weekend.

Boaters using this section of the river may be impacted by the sight, sound and smell of motorized craft (even when coming downstream at a no-wake speed) and it may detract from the primitive experience they desire. In 2004 approximately 300 boaters used the river between June 5 and June 15.

There would be no opportunities for the use of PWC or landing of floatplanes in this section.

River Mile 84.5 to 92.5 - Recreation Classification – Anglers and other motorized boaters would have the opportunity to launch from Judith Landing (river mile 88.5) and travel upstream to river mile 84.5 and travel downstream to river mile 92.5 year round. Paddlers coming through the White Cliffs section may be impacted by motorized craft going in both directions at plane speeds. Impacts to paddlers could include visual disturbance, waves generated by boats operated at plane speed and noise.

There would be no opportunities for the use of PWC in this section. Floatplanes would be allowed in this section from September 16 to June 4.

River Mile 92.5 to 149 - Combination of Wild and Scenic Classifications – This section of the river provides visitors the greatest opportunity to experience solitude and the primitive nature of the UMNWSR. Unlike the White Cliffs section, this section has just one Level 2 site, which is located at river mile 131. In 2004, 21.5% of registered boaters (1,294 people) boated through this section of the river, as compared with 78% (4,682 people) in the White Cliffs section.

The seasonal restriction on motorized use (June 15-September 15) would allow for 10 days of additional motorized travel in both directions as compared to Alternative A. The time period from June 5 to June 15 would provide additional opportunities for anglers or other motorized boaters to access this section by motorized craft. June 15 to August 1, is considered the busiest portion of the season; however, the number of river floaters begins to increase following Memorial Day weekend.

This alternative differs from Alternative A in that it would allow motorboat use to occur during Memorial Day Weekend, and would allow paddlefish anglers the opportunity to go upstream from the Fred Robinson Bridge. This alternative also extends the motorized restriction into archery season (until September 15) which allows archers hunting

the river above the Fred Robinson Bridge the opportunity to hunt without noise impacts from motorboats for at least a portion of the season. It also decreases the opportunity, compared to Alternative A, for bowhunters to access public lands upstream of the Fred Robinson Bridge via motorboat. Compared to Alternative A, this alternative provides an additional 5 days of motorboat use in May/June, and extends an additional 5 days of non-motorized use in September, depending on where the observed Memorial and Labor weekend fall on the calendar.

There would be no opportunities for the use of PWC or landing of floatplanes in this section.

Avoiding peak days of use would decrease the opportunity for conflicts between paddlers and motorboats used for administrative use. Use agreements with other agencies would ensure administrative motorboat use and operation policy is consistent between all agencies. Agencies could work together to keep noise and visual impacts of motorized boats as minimal as possible without compromising completion of required work.

The opportunity for a primitive boating experience in the segments classified as wild and scenic would not be disrupted by the noise and visual impact of a floatplane approaching, landing and taking off. Floatplanes would still have the opportunity to access the UMNWSR, but only in specific sections and during specific timeframes.

Alternative D

Special Recreation Use Permits – An additional seven permits beyond the current level of 23 would be allowed. Seven additional operators could increase competition for campsites and conflicts with private boaters.

Opportunities for Boaters – Standards and indicators would be used to manage use opportunities. The public benefit of managing use with this approach is the sustained opportunity to recreate in a mostly primitive, natural landscape and social setting. Indicators reflect the overall condition of a specific section of river and standards reflect the minimum acceptable conditions for each indicator. Management actions would be implemented to ensure standards are not exceeded. Under this alternative, allocation of visitors would be an option to ensure standards are not exceeded. An allocation system would reduce freedom of access to the UMNWSR. Boaters may not have the opportunity to access the river during their desired timeframe, or may not have an opportunity for any river access during a season of use.

This alternative would be more restrictive than Alternatives A, B, or C as boaters in groups larger than 30 would be required to apply for an SRP. In 2004, 1.6% of groups were larger than 30. The SRP may stipulate restrictions such as

the day they can launch and the campsites they must use. Freedom to choose river access days and camping opportunities may be eliminated. Further, the SRP authorization is not guaranteed and may be denied depending on desired launch days.

Camping Facilities – There would be no additional Level 1 sites along the UMNWSR. Level 2 sites would be constructed only in recreational segments of the river. The primitive nature of the UMNWSR would be protected from the visual impact of additional facilities. Additional opportunities for boaters to use developed facilities would not occur except in recreational sections. Additional sites to facilitate access to the river would not occur.

The length of stay requirement at Level 2 sites from June 15 to August 1 would provide more camping opportunities during the busiest portion of the river season. Those choosing to camp in primitive settings, free of development, would require additional equipment for camp fires and knowledge of Leave No Trace camping. Additional education efforts may be required for boaters seeking a Level 4 camping experience.

Those seeking Level 3 and 4 camping opportunities must rely on map reading skills and be willing to seek and explore to locate a site.

Motorized Watercraft

River Mile 0 to 52 - Recreation Classification – Upstream and downstream travel would be allowed and would ensure an opportunity for visitors preferring to use motorboats to recreate on the Missouri River. Motorboats are currently used on a frequent basis in this section for fishing and hunting. Non-motorized boaters using this section of the river may be impacted by the sight, sound and smell of motorized craft and it may detract from their trip.

PWC would not have access to the UMNWSR between September 15 and June 15. This would decrease year around opportunities to access the river but would increase the amount of the upper river section PWC could operate in as compared to Alternative C. Boaters using the river in the shoulder seasons may be impacted by PWC, especially hunters and anglers.

Floatplanes could only use the first 3 miles of the river near Fort Benton.

River Mile 52 to 84.5 - Wild Classification – The seasonal motorboat restriction would encompass most of the season of use (May 1 to November 30). Opportunities to use motorboats at plane speeds both directions on the river would be restricted to periods of the year when environmental conditions and river levels could make such travel difficult.

Floaters would experience a longer timeframe when motorized boats would be restricted to downstream travel only at no-wake speeds as compared to Alternatives A and F.

Hunters accessing the river for upland bird and big game hunting opportunities could do so only by boating downriver to their destination. The sound of motorized craft operating at plane speeds would not be heard during the majority of hunting season.

There would be no opportunities for the use of PWC or the landing of floatplanes in this section.

River Mile 84.5 to 92.5 - Recreation Classification – Anglers and other motorized boaters would have the opportunity to launch from Judith Landing (river mile 88.5) and travel upstream to river mile 84.5 or travel downstream to river mile 92.5 year round. Paddlers coming through the White Cliffs section may be impacted by motorized craft going in both directions at plane speeds. Impacts to paddlers could include visual disturbance, waves generated by boats operated at plane speed and noise.

PWC would not have access to the UMNWSR between September 15 and June 15. This would decrease year around opportunities to access the river but would increase the amount of the river section PWC could operate in as compared to Alternative C. Boaters using the river in the shoulder seasons may be impacted by PWC, especially hunters and anglers.

There would be no opportunities for the landing of floatplanes in this section.

River Mile 92.5 to 149 - Combination of Wild and Scenic Classifications – This section of the river would provide visitors the greatest opportunity to experience solitude and the primitive nature of the UMNWSR. Unlike the White Cliffs section, this section has just one Level 2 site, which is located at river mile 131. In 2004, 21.5% of registered boaters (1,294 people) boated through this section of the river, as compared with 78% (4,682 people) in the White Cliffs section.

There would be no motorized use from June 15 through September 15 and downstream travel only at a no-wake speed from September 16 to November 30. This would provide a recreation opportunity for boaters seeking solitude and a primitive experience free from the sight, sound and smell impacts of motorized craft. As compared to Alternative A, opportunities for boaters to experience a predominantly primitive setting would increase.

As compared to Alternative A, motorized use opportunities would decrease under this alternative. Motorized users currently have the opportunity to go downstream at a no-

wake speed through this section from the Saturday before the observed Memorial Day through the Sunday after Labor Day. Motorized use under this alternative would be restricted to the shoulder seasons of use, and would be further restricted compared to Alternative A, B, C or F as the shoulder seasons of use would be restricted to downstream travel at a no-wake speed. There would be no opportunity, year around, for motorized craft to operate at plane speeds in both directions on this section of the river.

Opportunities for floaters to experience a primitive trip free of the sight, smell and sound impacts of motorized craft would increase compared to Alternatives A, C, and F.

There would be no opportunities for the use of PWC or the landing of floatplanes in this section.

Noise and visual impacts from BLM motorboats traveling upstream would be eliminated. Use agreements with other agencies would ensure consistent administrative motorboat use and operation policy among all agencies. However, noise and visual impacts may continue to occur.

Opportunities for those wishing to access the UMNWSR by floatplane would be greatly reduced compared to current management as only 3 miles of the 149 miles would be accessible. Potential conflicts with boaters from noise levels and visual impacts would be eliminated, except for the 3-mile section.

Alternative E

Special Recreation Use Permits – An allocation of use for both private and commercial boaters would occur with this alternative, and each commercial operator may be assigned a specific number of user days. There would be no potential for a further increase in visitor use from commercial river trips. Competition for campsites and conflicts with private boaters would not increase. Commercial river guiding businesses would have little or no opportunity for growth and expansion of their client base.

Opportunities for Boaters—The carrying capacity of the river would be established at the current level of visitor use. An allocation system would be developed and implemented based on that level of use. In 2004, 5,993 boaters registered to boat the river. A 2002 survey of users ranked crowding at 2.4 on a scale ranging from 0 to 9 (0 is the lowest amount of crowding and 9 the highest). Implementing an allocation system at current use levels may establish a carrying capacity that is well below an acceptable level or standard of visitor use. As a result, future boaters may be denied access opportunities to the river. Implementing an allocation system based on current use levels would ensure that crowding does not occur and opportunities for privacy and solitude would be maintained.

This alternative would be the most restrictive on boater group size as groups larger than 16 would be required to apply for an SRP. In 2004, 5.6% of groups were larger than 16. As in Alternative D, the SRP may stipulate restrictions and the authorization may be denied.

Camping Facilities – There would be no facility development beyond current levels. Construction of facilities that may detract from the primitive nature of the UMNWSR would not occur.

During the busiest portion of the season (June 15-August 1), a 2-night stay limit would help alleviate congestion at Level 2 sites, ensure a consistent flow of traffic downriver, and open camping opportunities for new boaters entering the sites. The 2-night limit would also alleviate sight and sound impacts as the incidence of boater accumulation in a specific area would be reduced.

Those choosing to camp in primitive settings, free of development, would require additional equipment for camp fires and knowledge of Leave No Trace camping. Additional education efforts may be required for boaters seeking a Level 4 camping experience.

Those seeking Level 2, 3, and 4 camping opportunities must rely on map reading skills and be willing to seek and explore to locate a site.

Motorized Watercraft

River Mile 0 to 52 - Recreation Classification – Opportunities for use of motorized watercraft, including PWC and floatplanes, would be eliminated. The ability of many hunters and anglers to use motorized watercraft in this section to access fishing and hunting opportunities would be eliminated.

River Mile 52 to 84.5 - Wild Classification – Noise and visual impacts from motorized use would be eliminated. Opportunities for users choosing motorized access to hunt and view the UMNWSR would also be eliminated.

River Mile 84.5 to 92.5 - Recreation Classification – Anglers and hunters using motorized craft would not have access to recreation opportunities in this river section as in Alternatives A, B, C, D, and F. Floaters finishing their trip through the White Cliffs section or beginning their trip in the lower section would not incur the noise and visual impacts of motorized use.

River Mile 92.5 to 149 - Combination of Wild and Scenic Classifications – Noise and visual impacts from motorized use would be eliminated. Opportunities for users choosing motorized access to hunt and view the UMNWSR would also be eliminated. The ability of many hunters and anglers to use motorized watercraft in this section during the

shoulder seasons to access fishing and hunting opportunities would be eliminated.

Noise and visual impacts from all agency motorboats would be eliminated under this alternative. The public and administrative use of motorized craft would be consistent.

Floatplanes would have no opportunity to access the UMNWSR. All possible conflicts with boaters would be eliminated.

Alternative F (Preferred Alternative)

Special Recreation Use Permits – Limiting the number of SRPs issued for the Missouri River would reduce opportunities for additional commercial use of the resource. During the last 3 years, nine additional commercial operators have expressed interest in applying for a permit on the Missouri River. While the number of commercial operators is limited under this alternative, user days are not, and commercial users can run as many trips as demand allows. However, limiting the number of permits would ensure new, additional commercial operators would not be adding to the issues of campsite competition, conflicts with private boaters and social and resource impacts. Commercial use went from 17% of the use in 1997 to 29% of the use in 2004.

One-time permits would allow universities and other groups that meet the definition of commercial use an opportunity to use the UMNWSR.

Opportunities for Boaters – Standards and indicators would be used to manage use opportunities. The public benefit of managing use with this approach is the sustained opportunity to recreate in a mostly primitive, natural landscape and social setting. Indicators reflect the overall condition of a specific section of the river and standards reflect the minimum acceptable conditions for each indicator. Management actions would be implemented to ensure standards are not exceeded. As visitor use patterns change or numbers increase, additional restrictions on boaters may be implemented to maintain the standard if use levels could be exceeded to a point where current restrictions are insufficient. This alternative provides an opportunity for boaters to continue using the river without an allocation system and the public would continue to have access to the resources and recreation opportunities of the Missouri River without competition. Within the framework of required visitor use restrictions, boaters could access the river when and where they choose.

Camping Facilities – Facility development would not detract from the wild and scenic river classification standards, and would ensure boaters had a range of opportunities to fit their desired camping experience. Disturbance to vegetation from Level 1 construction would occur only in recreational segments of the river. Disturbance to vegeta-

tion could occur in the wild and scenic segments for development of Level 2 sites, and would be minimized to ensure visual integrity of the resource is maintained. Development of new Level 3 sites would remove vegetation within a core area near the fire ring. Impacts to vegetation would be monitored to ensure they do not exceed standards for campsite condition.

During the busiest portion of the season (June 15-August 1), a 2-night limit would alleviate congestion at the busy Level 2 sites, ensure a consistent flow of traffic downriver, and provide camping opportunities for new boaters entering the sites. The 2-night limit would also alleviate sight and sound impacts as the incidence of boater accumulation would decline.

Those choosing to camp in primitive settings, free of development, would require additional equipment for camp fires and knowledge of Leave No Trace camping. Additional education efforts may be required for boaters seeking a Level 4 camping experience.

Signs would be carefully managed to ensure the visual quality and primitive setting of the UMNWSR is not diminished. Those seeking Level 4 camping opportunities must rely on map reading skills and be willing to seek and explore to locate a site.

Motorized Watercraft

River Mile 0 to 52 - Recreation Classification – Leaving this upper section open for upstream and downstream travel would ensure an opportunity for visitors preferring to use motorboats to recreate on the Missouri River.

Opportunities for use of PWC would be greatly diminished. PWC are rarely seen on this section of the Missouri River. Opportunities for those wishing to access the UMNWSR by floatplane would be greatly reduced. Only 3 miles of the 149 miles would be accessible. Potential conflicts with boaters from noise levels and visual impacts would be eliminated except for the 3-mile section.

River Mile 52 to 84.5 — Wild Classification – This White Cliffs section would provide boaters an opportunity to experience a more primitive setting than they might in the upper section. This section contains four developed boater camps, and 78% of all boaters on the Missouri River travel this stretch of river. While this portion of the Missouri River is classified as wild, current levels of facility development and visitor popularity create a setting compatible for restricted motorized use (downstream travel only at a no-wake speed). The seasonal restriction on motorized use would still allow for motorized travel in both directions during the shoulder seasons (generally the fishing and hunting seasons).

Boaters using this section of the river may be impacted by the sight, sound and smell of motorized craft (even when coming downstream at a no-wake speed) and it may detract from the primitive experience they desire.

Motorboat users would lose the mobility of traveling in both directions during the no-wake time frame. However, they would continue to have access to the White Cliffs section and a primitive setting opportunity. Anglers would not have the opportunity to launch from Judith Landing (river mile 88.5) and come upstream beyond river mile 84.5, or launch from Coal Banks Landing (river mile 41.5) and go downstream beyond river mile 52, from June 5 through September 15.

There would be no opportunities for the use of PWC or the landing of floatplanes in this section.

River Mile 84.5 to 92.5 - Recreation Classification – Anglers and other motorized boaters would have the opportunity year round to launch from Judith Landing (river mile 88.5) and travel upstream to river mile 84.5, or launch from Coal Banks Landing (river mile 41.5) and travel downstream to river mile 52. Paddlers coming through the White Cliffs section may be impacted by motorized craft going in both directions at plane speeds. Impacts could include visual disturbance, waves generated by boats operated at plane speed and noise.

There would be no opportunities for the use of PWC or the landing of floatplanes in this section.

River Mile 92.5 to 149 - Combination of Wild and Scenic Classifications – This portion of the river provides visitors the greatest opportunity to experience solitude and the primitive nature of the UMNWSR. Unlike the White Cliffs section, this section has just one Level 2 site, which is located at river mile 131. In 2004, 21.5% of registered boaters (1,294 people) boated through this section of the river, as compared with 78% (4,682 people) in the White Cliffs section.

There would be no motorized use from June 5 through September 15. This would provide a recreation opportunity for boaters seeking solitude and a primitive experience free from the site, sound and smell impacts of motorized craft. As compared to Alternative A, opportunities for boaters to experience a predominantly primitive setting would increase.

Motorized use opportunities would decrease under this alternative and would be restricted to the shoulder seasons of use, prior to June 5 and after September 15, when motorized watercraft could travel in both directions at plane speeds.

This alternative would allow motorboat use to occur during Memorial Day Weekend, and would allow paddlefish anglers the opportunity to go upstream from the Fred Robinson Bridge. This alternative also extends the motorized restriction into archery season (until September 15) which would allow archers hunting the river above the Fred Robinson Bridge the opportunity to hunt without noise impacts from motorboats for a portion of the season. It also decreases the opportunity, compared to Alternative A, for bowhunters to access public lands upstream of the Fred Robinson Bridge via motorboat. Compared to Alternative A, this alternative would provide an additional 5 days of motorboat use in May/June, and extend an additional 5 days of non-motorized use in September, depending on where the observed Memorial Day and Labor Day weekends fall on the calendar.

There would be no opportunities for the use of PWC or the landing of floatplanes in this section.

Avoiding peak days of use would decrease the opportunity for conflicts between floaters and motorboats used for administrative use. Use agreements with other agencies would ensure the administrative motorboat use and operation policy is consistent among all agencies. Agencies could work together to keep noise and visual impacts of motorized boats to as low a level as possible without compromising completion of required work. Noise and visual impacts would continue to occur on days outside peak use periods.

Uplands Special Recreation Management Area

Alternative A (Current Management)

Special Recreation Use Permits – With no limit on the number of commercial SRPs issued for hunting in the uplands, the potential for conflicts between commercial and general public hunters would exist, especially if there would be a rapid and large increase in SRP applications.

Assigning the permit to a specific area, based on knowledge of visitor use patterns and numbers, could decrease conflicts between commercial and general public hunters.

Commercial SRPs for vehicle tours would be unlimited and vehicle use would be unrestricted throughout the uplands. Growth of the commercial vehicle tour industry could lead to increased traffic levels at the expense of semi-primitive motorized opportunities.

Camping Facilities – Recreation development could occur in the uplands if a partnership is developed. Dispersed camping would continue and impacts to soil and vegetation from vehicles and camp activities would occur in relationship to the increase or decrease of visitor use.

With an increase in popularity of the uplands, rock fire rings and scars from fires could be protrusive on an otherwise predominantly primitive landscape.

A full range of signs and kiosks could be constructed at Level 1 sites. Level 2 and 3 sites would be marked and identified with signs. The primitive nature of the uplands may be visually compromised in some areas.

Alternative B

Special Recreation Use Permits – With no limit on the number of commercial SRPs issued for hunting in the uplands, the potential for additional conflicts (beyond current levels) between commercial and general public hunters would exist, especially if there would be a rapid and large increase in commercial use.

Assigning permits to the entire Monument could increase conflicts as any commercial permittee could access any hunting area. There would be potential for a concentrated number of commercial permittees in areas favored by the general public.

Commercial SRPs for vehicle tours and the number of vehicles used would be unlimited, but vehicles associated with the permit would be restricted to mostly local and collector roads. Increased traffic levels on resource roads would not lessen the semi-primitive motorized experience. Traffic may increase on local and collector roads.

Camping Facilities – Level 1 sites could be constructed within the interior of the uplands, but at places where some of level of development has occurred in the past (fishing reservoirs, overlooks or historic sites).

Level 3 sites, where only a metal fire ring is present, would be confined to pull-outs immediately adjacent to a road.

With an increase in popularity of the uplands, rock fire rings and scars from fires could impact an otherwise predominantly primitive landscape.

There would be no restrictions on signs anywhere in the uplands and the primitive nature of the area could be visually compromised if signs were installed along roads or in dispersed areas.

Alternative C

Special Recreation Use Permits – The number of permits issued for outfitted hunting would be limited to the current number. Limiting the number of commercial permittees (operators) decreases the possibility of conflicts with the general public; however, it leaves the opportunity for the commercial permittees (operators) to hire unlimited guides, which could lead to increased conflicts in areas favored by the general public.

Assigning permits to the entire Monument could increase potential conflicts, as any commercial permittee could access any hunting area. This could concentrate a number of commercial permittees in areas favored by the general public.

Commercial SRPs for vehicle tours and the number of vehicles used would be unlimited, but vehicles would be restricted on some resource roads. Semi-primitive motorized opportunities would not decrease on resource roads. Traffic may increase on local and collector roads.

Camping Facilities—Level 1 sites could not be constructed within the interior of the uplands. They could be constructed only along the outside perimeter at the transition point between collector and local/resource roads. There would be no opportunity for visitors seeking a Level 1 site while traveling the uplands. There would be an opportunity for a semi-primitive motorized trip, free from the sight of large-scale development within the uplands.

Level 2 sites could be constructed along any road (collector, local or resource) in the uplands. Level 2 sites would provide access to dispersed and primitive hiking and camping opportunities, but without the large development potential of a Level 1 site. Level 2 sites would blend with the natural surroundings and provide park and explore opportunities. Level 2 sites occurring on local or resource roads could visually detract from the primitive nature of the uplands.

Level 3 sites, where only a metal fire ring is present, would be confined to pull-outs immediately adjacent to a road. A proliferation of campsites with metal fire rings would not occur in the large tracts of land in the uplands.

The use of camp stoves, fire pans, or fire mats would be required for dispersed camping (Level 4 opportunities) would eliminate additional rock fire rings (from current levels) and fire scars from the predominantly primitive landscape.

Signing would be of minimum size and only used at Level 1, 2, or 3 sites. The primitive nature of the uplands may be visually compromised depending on the number of Level 3 sites identified and developed in the future.

Alternative D

Special Recreation Use Permits—With no limit on the number of commercial SRPs issued for hunting in the uplands, the potential for conflicts between commercial and general public hunters would exist, especially if there would be a rapid and large increase of SRP applications.

Issuing permits in areas with limited public access could reduce the potential for conflicts between commercial users

and general public users.

Commercial SRPs for vehicle tours would be unlimited, but the number of vehicles allowed each operator per day would be restricted to two. This would minimize the number of potential commercial vehicles traveling through the uplands on any given day.

Camping Facilities—There would be no Level 1 sites in the uplands. This would ensure the primitive nature of the uplands would be maintained, but would eliminate an opportunity for those wishing to camp in a developed site prior to entering the interior core as stated in Alternative C, or within the interior as stated in Alternative B.

Level 2 sites could be constructed only along main artery roads (collector and some local roads). Other local and resource roads would remain in a more primitive state.

Level 3 sites, where only a metal fire ring is present, would be confined to pull-outs immediately adjacent to a road. A proliferation of campsites with metal fire rings would not occur in the large tracts of land in the uplands.

The use of camp stoves, fire pans, or fire mats would be required for dispersed camping (Level 4 opportunities) would eliminate additional rock fire rings and fire scars from the predominantly primitive landscape.

Signing would be restricted to Level 1 and 2 sites commensurate with visual surroundings. There would be no signs at Level 3 sites. There would be reduced opportunities for visual impairment to the primitive nature of the area as compared with Alternatives A, B, and C.

Alternative E

Special Recreation Use Permits—With no limit on the number of commercial SRPs issued for hunting in the uplands, the potential for additional conflicts between commercial and general public hunters would exist, especially if there would be a rapid and large increase of SRP applications.

Issuing permits in areas with public access could increase the potential for conflicts between commercial users and general public users.

There would be no opportunity for commercial vehicle tours. The traffic level in the uplands would not be increased by commercial use.

Camping Facilities—There would be no site development of any type in the uplands. While this would ensure primitive integrity, it would also eliminate all camping opportunities except Level 4 dispersed camping. It would also eliminate the opportunity to educate and inform the

public through interpretive signing associated with Level 1 and Level 2 site developments.

The use of camp stoves, fire pans, or fire mats would be required would eliminate additional rock fire rings and fire scars from the predominantly primitive landscape.

Signing in the uplands would be limited to safety and commensurate with visual surroundings. While this would ensure the visual integrity of the uplands, it would eliminate the use of signs for information and education of visitors.

Alternative F (Preferred Alternative)

Special Recreation Use Permits – The number of permits issued for outfitted hunting would be limited to the current number. Limiting the number of commercial permits does decrease the possibility of conflicts with the general public by limiting the number of operators in the Monument. However, it leaves the opportunity for the commercial permittees to hire unlimited guides, which could lead to increased conflicts in areas favored by the general public.

Assigning the permit to a specific area, based on knowledge of visitor use patterns and numbers, could decrease potential conflicts between commercial and general public hunters.

Commercial permits for vehicle tours would be unlimited, but the number of vehicles allowed each operator per day would be restricted to two. This would minimize the number of potential commercial vehicles traveling through uplands on any given day.

Camping Facilities – Level 1 sites could not be constructed within the interior of the uplands. They could be constructed only along the outside perimeter at the transition point between collector and local/resource roads. There would be no opportunity for visitors seeking a Level 1 site while traveling the uplands. There would be an opportunity for a semi-primitive motorized trip, free from the sight of large-scale development within the uplands.

Level 2 sites could be constructed along any road (collector, local or resource) in the uplands. Level 2 sites would provide access to dispersed and primitive hiking and camping opportunities, but without the large development potential of a Level 1 site. Level 2 sites would blend with the natural surroundings and provide park and explore opportunities. Level 2 sites occurring on local or resource roads may visually detract from the primitive nature of the uplands.

Level 3 sites would be allowed only adjacent to local and collector roads, not resource roads. An exception could occur adjacent to closed spur roads, and then no further than

300 feet from the local or collector road it stems from. These sites would be shown on a map and would present an opportunity for visitors who seek a primitive experience.

The use of camp stoves, fire pans, or fire mats would be required for dispersed camping (Level 4 opportunities) would eliminate additional rock fire rings (from current levels) and fire scars from the predominantly primitive landscape.

Signing would be restricted to Level 1 and Level 2 sites commensurate with visual surroundings. There would be no signs at Level 3 sites. The limited signing would lessen the potential impacts to the visual resource and the primitive nature of the area.

Impacts to Recreation from Natural Gas Exploration and Development

Drilling Operations

Alternative A (Current Management)

The quality of the recreational experience may be reduced by the very presence of a well. Wells, and associated operations, may displace recreation activities to other areas. Activities associated with well development may degrade the experience of hikers or hunters or other visitors seeking a primitive setting free from modern structures and mechanical operations.

Drilling and production activities may temporarily displace hunters during hunting seasons. Hikers may have sight and sound conflicts with drilling activity and may also be temporarily displaced.

The use of vehicles on administrative roads may detract from the primitive experience of hikers. During the hunting season, opportunities would be reduced for hunters seeking a walk-in experience free of motor vehicles.

Alternative B

The potential to reduce the quality of the recreational experience would increase.

Drilling and production activities may temporarily displace hunters during hunting seasons. Hikers may have sight and sound conflicts with drilling activity and may also be temporarily displaced.

The use of vehicles on administrative roads may detract from the primitive experience of hikers. During the hunting season, opportunities would be reduced for hunters seeking a walk-in experience free of motor vehicles.

Alternative C

The quality of the recreational experience may be reduced by the very presence of a well. Wells, and associated operations, may displace recreation activities to other areas. Activities associated with well development may degrade the experience of hikers or hunters or other visitors seeking a primitive setting free from modern structures and mechanical operations.

Drilling and production activities may temporarily displace hunters during hunting seasons. Hikers may have sight and sound conflicts with drilling activity and may also be temporarily displaced.

The vehicle impacts described in Alternatives A and B would remain, but frequency would be reduced.

Alternative D

There would be fewer potential impacts to the recreational experience.

Drilling and production activities may temporarily displace hunters during hunting seasons. Hikers may have sight and sound conflicts with drilling activity and may also be temporarily displaced.

The vehicle impacts described in Alternatives A and B would remain, but frequency would be reduced.

Alternative E

This alternative would produce the fewest potential impacts to the recreational experience.

Drilling and production activities may temporarily displace hunters during hunting seasons. Hikers may have sight and sound conflicts with drilling activity and may also be temporarily displaced.

The vehicle impacts described in Alternatives A and B would remain, but frequency would be reduced.

Alternative F (Preferred Alternative)

The quality of recreation may be reduced by the very presence of a well. Wells, and associated operations, may displace recreation activities to other areas. Activities associated with well development may degrade the experience of hikers or hunters or other visitors seeking a primitive setting free from modern structures and mechanical operations.

Drilling and production activities may temporarily displace hunters from an area during hunting seasons. Hikers may have sight and sound conflicts with drilling activity and may also be temporarily displaced.

The vehicle impacts described in Alternatives A and B would remain, but frequency would be reduced.

Impacts to Recreation from Access and Transportation

Access

Alternative A (Current Management)

Access to public lands could improve, affording greater recreational opportunities for the public.

The general public would have more motorized access to portions of the Monument. This may decrease opportunities for those seeking a more primitive walk-in experience.

Individuals with disabilities could have opportunities for access not granted to the general public.

Alternative B

Gaining access to BLM land could provide additional recreational opportunities. Some of these tracts are utilized by commercial hunting outfitters who, because of access issues, have little interaction with general public hunters.

The general public would have more motorized access to portions of the Monument. This may decrease opportunities for those seeking a more primitive walk-in experience.

Individuals with disabilities could have opportunities for access not granted to the general public.

Alternative C

Gaining access to BLM land could provide recreational opportunities. Some of these tracts are utilized by commercial hunting outfitters who, because of access issues, have little interaction with general public hunters.

There would be fewer opportunities to access new roads with motorized vehicles than in Alternatives A and B. Wilderness study area values sensitive to motorized vehicles would be better protected than in Alternatives A and B.

Individuals with disabilities could have opportunities for access not granted to the general public.

Alternative D

Access to BLM land and associated recreation opportunities would remain at current levels. The general public may continue to express concerns that only commercial hunting outfitters or those with private land access could access certain parts of the Monument.

Potential impacts from motorized vehicles would be analyzed prior to public use of new natural gas access roads. Additional motorized public access could occur after site-specific analysis.

Individuals with disabilities could have opportunities for access not granted to the general public.

Alternative E

Access to BLM land and associated recreation opportunities would remain at current levels. The general public may continue to express concerns that only commercial hunting outfitters or those with private land access could access certain Monument lands.

No additional public access would occur when new natural gas access roads are constructed.

Individuals with disabilities could have opportunities for access not granted to the general public.

Alternative F (Preferred Alternative)

Gaining access to BLM land could provide recreation opportunities. Some of these tracts are utilized by commercial hunting outfitters who, because of access issues, have little interaction with general public hunters.

Additional public access to new natural gas roads could occur after site-specific analysis.

Individuals with disabilities could have opportunities for access not granted to the general public.

BLM Road System

Alternative A (Current Management)

Opportunities for hunters and other visitors to access state land would not change.

The visiting public has motorized access to 97% of current BLM roads at some time during the year. Currently, 12% of the BLM roads are closed seasonally. This level of access certainly benefits those publics who recreate in a motorized vehicle, or use a motorized vehicle to access BLM land. This level of access may be detrimental to those users seeking a more primitive, non-motorized experience.

Opportunities for hunters to experience walk-in hunts without interference of motorized vehicles would be more difficult under this alternative. Opportunities to access backcountry airstrips via road would not be restricted.

Exceptions – Except in the WSAs, hunters would have off-road access with non-motorized/non-mechanized game carts to retrieve tagged big game animals. In the WSAs, game carts would not be allowed off road.

Camping opportunities would be limited to those areas accessible by foot from a designated road.

Signing – Additional new signs may visually detract from primitive nature of the Monument.

Alternative B

Hunters and other visitors would have fewer opportunities to access state land when four roads are closed seasonally leading to state land to protect the objects for which the Monument was designated. This may displace hunters and other visitors and result in a more concentrated number of users on surrounding BLM land.

An additional 40 miles of road would be closed yearlong and 22 miles closed seasonally. This would reduce motorized opportunities, but increase walk-in opportunities. Seasonal closures for bighorn sheep may provide increased hunting opportunities and watchable wildlife viewing opportunities. Road access to backcountry airstrips would be restricted to 10 airstrips.

Additional opportunities for mountain bike use may occur on closed roads.

Road System Criteria – Seasonal road closures to protect wildlife could restrict motorized vehicle access and motorized recreation opportunities.

Exceptions – Hunters would have access on some identified closed roads to retrieve tagged big game animals and, except in the WSAs, would have off-road access with non-motorized, non-mechanized game carts. Access on closed roads during early morning and late evening hours may disrupt the effort of other hunters in the same area. In the WSAs, game carts would not be allowed off road.

Campers could create new tracks up to 300 feet in length to campsites. Additional tracks may also spur off the newly created track leaving a possible spider web of tracks leading to campsites.

Signing – Adding signs, after careful monitoring, would help ensure signing only areas with an established, critical need. Signing only open roads would reduce the number of signs needed.

Alternative C

Hunters and other visitors would have fewer opportunities to access state land when four roads are closed seasonally and one road closed yearlong leading to state land to protect the objects for which the Monument was designated. This may displace hunters and other visitors and result in more concentrated numbers of users on surrounding BLM land.

Access to 69% of the current roads year around would continue to provide opportunities for motorized activities, but at a reduced level compared to Alternatives A and B. Visitor seeking walk-in experiences would have more opportunity than in Alternative A and B. Road access to backcountry airstrips would be restricted to seven airstrips.

Additional opportunities for mountain bike use may occur on closed roads.

Road System Criteria – Seasonal road closures to protect wildlife could restrict motorized vehicle access and motorized recreational opportunities.

Exceptions – Retrieval of a tagged big game animal would be restricted by designating specific hours of availability and specific access roads. Disruption of other hunters would be reduced with the retrieval timeframe of 10:00 a.m. to 2:00 p.m. and 3 hours after the legal hunting time. Except in the WSAs, hunters would have off-road access to tagged animals with non-motorized, non-mechanized game carts. In the WSAs, game carts would not be allowed off road.

Campers could create new tracks up to 150 feet in length to campsites. Additional tracks may also spur off the newly created tracks leaving a possible spider web of tracks leading to campsites.

Signing – Adding signs, after careful monitoring, would help to ensure that only areas with critical needs would be signed. Signing only open roads would reduce the number of signs.

Alternative D

Hunters and other visitors would have fewer opportunities to access state land when four roads are closed seasonally and five roads are closed yearlong leading to state land to protect the objects for which the Monument was designated. This may displace hunters and other visitors and result in more concentrated numbers of users on surrounding BLM land.

Allowing access to 48% of current roads year round would diminish opportunities for motorized travel and access. Resource roads (spur roads) and parallel roads would compose many of the additional closures. Hunters may

experience fewer opportunities to access current hunting camps if those camps are located on closed spur roads. Hunters and other visitors seeking a more primitive walk-in experience would have more opportunities than in Alternatives A, B, or C. Road access to backcountry airstrips would be restricted to six airstrips.

Road System Criteria – Seasonal road closures to protect wildlife could restrict motorized vehicle access and motorized recreational opportunities.

Exceptions – Retrieval of a tagged big game animal would be restricted by designating specific hours of availability and specific designated closed roads. Disruption of other hunters would be reduced with the 10:00 a.m. to 2:00 p.m. retrieval timeframe. Except in the WSAs, hunters would have off-road access to retrieve tagged big game animals with non-motorized, non-mechanized game carts. In the WSAs, game carts would not be allowed off road.

Vehicles would not create new tracks by pulling off designated roads no more than 10 feet, but opportunities to camp with a vehicle would increase above those stated in Alternative A.

Signing – Adding signs only after careful monitoring would help to ensure that only areas with critical needs would be signed. Signing only open roads would reduce the number of signs.

Alternative E

Hunters and other visitors would have fewer opportunities to access state land when most roads are closed yearlong leading to state land to protect the objects for which the Monument was designated. This may displace hunters and other visitors and result in more concentrated numbers of users on surrounding BLM land.

Allowing access to only 17% of current roads year round would increase non-motorized opportunities. Major collector roads into the uplands would remain, but most resource roads would be closed. Access to hunting camps on resource roads would be reduced or eliminated. Road access to airstrips would be eliminated. Hunters and visitors seeking a primitive non-motorized experience would have greatly increased opportunities.

Road System Criteria – Seasonal road closures to protect wildlife could restrict motorized vehicle access and motorized recreational opportunities.

Exceptions – There would be no opportunity to retrieve a tagged big game animal with a vehicle from a closed road. Non-motorized/non-mechanized game carts would be allowed on closed roads to retrieve a tagged big game animal,

but game carts would not be allowed off road. Hunters with tagged animals would be required to pack them out to an accessible road.

Camping opportunities would be limited to those areas accessible by foot from a designated road.

Signing – Eliminating signs for open or closed roads would ensure the landscape remains free of visual clutter that could detract from the primitive nature of the Monument. Travelers would have to rely on a map to determine which roads were open or closed.

Alternative F (Preferred Alternative)

Hunters and other visitors would have fewer opportunities to access state land when eight roads are closed seasonally and four roads are closed yearlong leading to state land to protect the objects for which the Monument was designated. This may displace hunters and other visitors and result in more concentrated numbers of visitors on surrounding BLM land.

Allowing access to 64% of current roads would continue to provide opportunities for motorized activities, but at a reduced level compared to Alternative A. Visitors seeking walk-in experiences would have more opportunities.

Additional opportunities for mountain bike use may occur on closed roads.

Road System Criteria – Seasonal road closures to protect wildlife could restrict motorized vehicle access and motorized recreational opportunities.

Exceptions – Retrieval of a tagged big game animal would be restricted by designating specific hours of use and specific designated closed roads. Disruption of other hunters would be reduced with the 10:00 a.m. to 2:00 p.m. retrieval time frame. Except in the WSAs, non-motorized/non-mechanized game carts would be allowed off road to retrieve tagged big game animals. In the WSAs, game carts would not be allowed off road.

Campers could create new tracks up to 300 feet in length in to campsites. Additional roads may also spur off the newly created road leaving a possible spider web of roads leading to campsites.

Signing – Adding signs only after careful monitoring would help to ensure only areas with critical needs would be signed. Signing only open roads would reduce the number of signs.

Aviation

Alternative A (Current Management)

The primitive experience of hikers, hunters, boaters and others recreating in the vicinity of an airstrip may be impacted by the sight and sound of aircraft approaching, landing and taking off from an airstrip. Aircraft can be seen and heard from a much longer distance than other forms of motorized travel. Because of this longer disruption, the primitive nature of the Monument may be disrupted for longer periods than from other forms of motorized use. Depending on frequency of use, the widespread magnitude of disruption to the primitive nature of the Monument from sight and sound of aircraft using 10 airstrips could be considerable.

The primitive experience of hikers, hunters and others may be impacted by the sight and sound of commercial aircraft approaching, landing and taking off from an established airstrip or from remote undeveloped sites.

Alternative B

Disrupting the primitive nature of the Monument from the sight and sound of aircraft could increase given the possibility of additional airstrips.

The primitive experience of hikers, hunters and others may be impacted by the sight and sound of commercial aircraft approaching, landing and taking off from an established airstrip or from remote undeveloped sites.

Alternative C

Disrupting the primitive nature of the Monument from the sight and sound of aircraft may be reduced, especially with the addition of seasonal airstrip restrictions. However, maintaining seven airstrips would leave few opportunities for those wishing a primitive experience free of the sight and sound of aircraft. The frequency of use of each of the strips would determine the magnitude of the impact.

The primitive experience of hikers, hunters, boaters and others recreating in the vicinity of an airstrip may be impacted by the sight and sound of commercial aircraft approaching, landing and taking off from an airstrip. The potential for sight and sound impacts would be less than in Alternatives A and B. However, seven airstrips spaced to accommodate most geographical blocks of the Monument would leave fewer opportunities for those wishing a primitive experience in the uplands free of the sight and sound of aircraft approaching, landing or taking off. The frequency of use of each of the strips would determine the magnitude of the impact.

Alternative D

The impacts from sight and sound of aircraft would be similar to those in Alternative C. There would be a slight reduction of impacts in the geographical region near the Woodhawk airstrip.

The impacts from sight and sound of commercial aircraft would be similar to those in Alternative C. There would be fewer impacts in the geographical region near the specific airstrips not authorized for landing.

Alternative E

All potential impacts to the primitive nature of the Monument from the sight and sound of aircraft would be eliminated. However, all opportunities for aircraft to access the Monument would also be eliminated.

All potential impacts to the primitive nature of the Monument from the sight and sound of commercial aircraft would be eliminated. However, all opportunities for commercial aircraft to access the Monument would also be eliminated.

Alternative F (Preferred Alternative)

Disruption of the primitive nature of the Monument from sight and sound of aircraft may be less than stated in Alternative A, B, and C, especially with the addition of seasonal restrictions. However, six airstrips spaced to accommodate most geographical blocks of the Monument would leave fewer opportunities for those wishing a primitive experience in the uplands free of the sight and sound of aircraft approaching, landing or taking off. The frequency of use of each of the strips would determine the magnitude of the impact.

The impacts from sight and sound of commercial aircraft would be similar to those in Alternative C. There would be fewer impacts in the geographical region near the specific airstrips not authorized for landing.

Summary of Cumulative Impacts to Recreation

Alternative A (Current Management)

Visitors to the UMNWSR and uplands would continue to enjoy mostly unrestricted opportunities to participate in recreation pursuits when and where and how they choose.

Visitors would not be subjected to further recreation use fees than currently charged to camp at the James Kipp Recreation Area.

Should recreational use continue to grow at the assumed rate of 5% per year, sight and sound impacts could elevate on the Missouri River. With increasing use, limited restrictions on that use, and group size unlimited up to 50 people, the opportunity for solitude and a primitive experience could become increasingly rare. Additional facilities may be constructed to accommodate increasing use and resolve user conflicts, further detracting from the primitive nature of the UMNWSR. This would be especially true in the White Cliffs section of the river, which currently has a higher level of development than the other sections.

Motorized use on the UMNWSR would continue as it has for the past 25 years with seasonal restrictions from the Saturday before the observed Memorial Day to the Sunday after Labor Day. As use of the river by floaters increases so may conflicts between the two user groups. There would be no opportunity for a primitive non-motorized experience on the river.

Commercial use of the river would remain at the current level of 23 commercial operators. Without restricting user days, it is possible that commercial use would elevate overall visitor use levels much faster than an increase from the private sector. Uplands SRPs would be unrestricted and should visitor use patterns change or levels of use increase, conflicts between private and commercial users could occur. Vehicle tours of the Monument would be unrestricted, and given a large increase in popularity, the number of vehicles using uplands roads could begin to degrade the semi-primitive nature of the area.

Alternative B

Visitors and commercial operators using the Missouri River and upland areas would have mostly unrestricted freedom to access recreation opportunities and participate in recreation pursuits.

There would be no recreation use fees charged in the Monument.

Should use continue to grow at the assumed rate of 5% per year, sight and sound impacts could elevate on the Missouri River. With increasing use, limited restrictions on that use, and group size unlimited up to 50 people, the opportunity for solitude and a primitive experience could become increasingly rare. Additional facilities may be constructed to accommodate increasing use and resolve user conflicts, further detracting from the primitive nature of the UMNWSR. This would be especially true in the White Cliffs section of the river which currently has a higher level of development than the other sections.

There would be no restrictions on motorized use. With increasing use by floaters, conflicts between boater groups would increase. There would be unlimited opportunity for

access and use of the river by motorized boaters and few opportunities for floaters to experience the primitive nature of the river free from the sight and sound of motorized craft.

There would be no restrictions on commercial SRPs. Based on current increases of use from the commercial sector, there would be greater potential for a rapid increase of visitor use beyond the assumed 5%. Uplands SRPs would be unrestricted and should visitor use patterns change or levels of use increase, conflicts between private and commercial users could occur. Vehicle tours of the Monument would be unrestricted, and given a large increase in popularity, the number of vehicles using uplands roads could begin to degrade the semi-primitive nature of the area.

Alternative C

Visitors to the Missouri River and upland areas of the Monument currently enjoy mostly unrestricted opportunities to participate in recreation pursuits when, where, how and as they choose. Should visitation increase at the assumed level of 5% per year, additional use restrictions as described in this alternative would begin to apply. Boaters on the Missouri River would be encumbered by additional restrictions on motorized watercraft, size of group, campsite selection, and length of stay. Without the option of use allocation, additional restrictions would be needed to provide sustainable visitor opportunities in mostly primitive landscapes.

A fee would be charged to camp overnight in developed recreation sites (Level 1 facilities).

Development along the UMNWSR and in the uplands may increase slightly under this alternative depending on visitation levels. Opportunities for new development along the river would be restricted, but when added to the level of current development, a cumulative impact would occur. The primitive characteristics of specific high use areas, such as Eagle Creek, or high use river sections, such as the White Cliffs section, may be altered by facility development needed to accommodate increases in visitor use.

In the uplands, development could occur in areas where no previous development has ever taken place. Development would be low key, blend with the surrounding environment and enhance visitor opportunities for the uplands.

Alternative D

Visitors to the Missouri River and upland areas of the Monument currently enjoy mostly unrestricted opportunities to participate in recreation pursuits when, where, how and as they choose. Should visitation increase at the assumed level of 5% per year, additional use restrictions would begin to apply. Boaters on the Missouri River would be encumbered by additional restrictions on motorized

watercraft, size of group, campsite selection, and length of stay.

Allocating use opportunities would be an option, and additional restrictions could be used to provide sustainable visitor opportunities in mostly primitive landscapes. The freedom to recreate without restriction could be reduced depending on future levels of visitor use.

Motorized use of the river would be restricted to seasonal opportunities at downstream no-wake speeds. There would be no opportunity for operating at plane speed in both directions.

Fees would be charged to camp at Level 1 sites and to boat the Missouri River.

Development along the UMNWSR and in the uplands may increase slightly depending on visitation levels. However it would be less than in Alternatives C and F. The primitive characteristics of specific high use areas, such as Eagle Creek, or high use river sections, such as the White Cliffs section, would not be altered by facility development needed to accommodate increases in visitor use.

Level 1 development in the uplands would remain at the current level. Some new Level 2 development could take place, but at levels reduced from those described in Alternatives C and F.

Alternative E

Visitor use opportunities would be restricted under this alternative. An allocation system would be initiated that may possibly reduce the freedom to access the UMNWSR.

Group size would be limited to 16 people and SRPs would be required for larger groups.

A fee would be charged to camp overnight at Level 1 sites, recreate in the Monument, and boat on the Missouri River.

There would be no facility development beyond current levels along the river or in the uplands.

There would be no motorized use of the UMNWSR, and agency use of motorized watercraft would follow the same restrictions imposed on the public.

Alternative F (Preferred Alternative)

Visitors to the Missouri River and upland areas currently enjoy mostly unrestricted opportunities to participate in recreation pursuits when, where, how and as they choose. Should visitation increase at the assumed level of 5% per year, additional use restrictions would begin to apply. Boaters on the Missouri River would be encumbered by

additional restrictions on motorized water craft, size of group, campsite selection, and length of stay. Without the option of use allocation, additional restrictions would be needed to achieve the goal of providing sustainable visitor opportunities in mostly primitive landscapes.

A fee would be charged to float the river and camp overnight in developed recreation sites (Level 1 facilities).

Development along the UMNWSR and in the uplands may increase slightly depending on visitation levels. Opportunities for new development along the river would be restricted, but when added to the level of current development, a cumulative impact would occur. The primitive characteristics of specific high use areas, such as Eagle Creek, or high use river sections, such as the White Cliffs section, may be altered by facility development needed to accommodate increases in visitor use.

In the uplands, development could occur in areas where no previous development has ever taken place. Development would be low key, blend with the surrounding environment, and enhance visitor opportunities for the uplands.

Transportation

Impacts to Transportation from Access and Transportation

Access

Alternative A (Current Management)

If the BLM would be successful in acquiring new public road easements anywhere in the Monument, it would increase the miles of roads open or open seasonally and available for motorized public travel. There would be no impact to administrative motorized use.

Any new BLM resource roads developed to accommodate natural gas development would provide additional motorized access for the public to travel.

Motorized travel could be allowed on some of the 15 miles of closed BLM roads (segments of 32 individual roads) for individuals with disabilities. This would provide access opportunities not granted to the general public.

Alternative B

If the BLM would be successful in acquiring new public road easements anywhere in the Monument, it would increase the miles of roads open or open seasonally and available for motorized public travel. There would be no impact to administrative motorized use.

Any new BLM resource roads developed to accommodate natural gas development would provide additional motorized access for the public to travel.

Motorized travel could be allowed on some of the 55 miles of closed BLM roads for individuals with disabilities. This would provide access opportunities not granted to the general public.

Alternative C

Attempts to acquire new public access easements for motorized travel would not include the northeast area of the Monument.

General public motorized access along new natural gas roads would be allowed, except in the Ervin Ridge area. This would decrease the number and miles of new BLM resource roads available for motorized public travel.

Motorized travel could be allowed on some of the 93 miles of closed BLM roads for individuals with disabilities. This would provide access opportunities not granted to the general public.

Alternative D

The BLM would not attempt to acquire new or additional public access.

Any new BLM resource roads associated with natural gas activities could potentially be open for motorized travel by the public.

Motorized travel could be allowed on some of the 264 miles of closed BLM roads for individuals with disabilities. This would provide access opportunities not granted to the general public.

Alternative E

The BLM would not attempt to acquire new or additional public access.

Any new BLM resource roads created for natural gas operations would be open for administrative use only and closed to motorized travel by the general public.

Motorized travel could be allowed on some of the 489 miles of closed BLM roads for individuals with disabilities. This would provide access opportunities not granted to the general public.

Alternative F (Preferred Alternative)

If the BLM would be successful in acquiring new public road easements anywhere in the Monument, it would in-

crease the miles of roads open or open seasonally and available for motorized public travel. There would be no impact to administrative motorized use.

Any new BLM resource roads associated with natural gas activities could potentially be open for motorized travel by the public.

Motorized travel could be allowed on some of the 216 miles of closed BLM roads (segments of 341 individual roads) for individuals with disabilities. This would provide access opportunities not granted to the general public. The low anticipated volume of traffic should have no impact to the BLM transportation system or the objects of the Monument.

BLM Road System

Alternative A (Current Management)

All existing BLM roads to state land would be open yearlong for administrative, private landowner and public use with motorized vehicles. There would be 37 miles (on 38 individual BLM roads) that would provide motorized access to 40 of the 45 state land parcels intermingled with the Monument. Nine of these roads provide legal motorized public access.

All existing BLM roads to private land would be open yearlong for administrative, private landowner and public use. There are 36 miles (on 34 individual BLM roads) providing motorized access to 34 of the 40 tracts of private land intermingled with the Monument. Sixteen miles of

BLM roads extending beyond state and private land would be open for public motorized travel.

Under this alternative, 506 miles of BLM roads would be open yearlong for public motorized and mechanized travel (including portions of 442 individual BLM roads). These roads access 14 natural gas wells, 10 backcountry airstrips, 5 range improvement water wells, 6 recreation sites including 1 fishing reservoir, 3 interpretive sites (historic homesteads), 1 Bodmer landscape site, 6 WSAs, and provide access associated with dispersed motorized use.

Seventy-three miles of BLM roads would be open seasonally to public motorized and mechanized travel. This would include portions of 58 individual BLM roads.

There would be 15 miles of BLM roads closed yearlong to public motorized access. This would include 14 miles (portions of 31 roads) within the Woodhawk and Two Calf watersheds to provide wildlife habitat security; and 1 mile (1 road) near the Gist historic homestead.

Road System Criteria – In the six WSAs, 56 miles of vehicle ways (authorized roads) would remain open to public motorized travel. This would include portions of 65 individual vehicle ways.

Road Classification and Maintenance – The BLM roads would fall into the classification shown in Table 4.25.

The BLM roads would fall into the maintenance levels shown in Table 4.26.

Table 4.25 BLM Road Classification Alternatives A (Current Management), C, D, and E			
Classification	Miles of Road	Number of Roads	Percent of Road System
Collector	18	2	3%
Local	31	4	5%
Resource	545	526	92%
Total	594	532	100%

Table 4.26 BLM Road Maintenance – Alternative A (Current Management)			
Maintenance Level	Miles of BLM Road	Number of Roads and Classification	Percent of Road System
Level 1	15 Miles	32 Resource Roads	3%
Level 2	505 Miles	486 Resource Roads	85%
Level 3	8 Miles	1 Collector Road (Knox Ridge)	11%
	56 Miles	4 Local Roads and 8 Resource Roads	
Level 4	10 Miles	1 Collector Road (Cow Island)	1%

Exceptions – Administrative motorized use by BLM, other federal agencies, state and county agencies, lessees and permittees could occur on 15 miles of roads closed yearlong (portions of 32 BLM roads). If a road segment provides access to a facility and becomes impassable, spot maintenance could be authorized on a case-by-case basis.

Administrative cross-country motorized travel in the Monument would be allowed yearlong.

Big game retrieval would not be allowed along 15 miles of resource roads that would be closed yearlong.

Motorized vehicles traveling the BLM roads designated as open yearlong or open seasonally would not be allowed to pull off the shoulder of the road to park and camp in the Monument. This would impact 579 miles along 500 BLM roads.

Alternative B

All BLM roads to state and private land would be open yearlong for administrative travel and private landowner use. Public use of these routes would be allowed either yearlong or seasonally and would include 73 miles of BLM roads (portions of 72 roads). There would be 16 miles of BLM resource roads that extend beyond state land closed yearlong to motorized public travel. This would include portions of 38 roads. There would also be 6 miles of BLM roads that extend beyond private land closed yearlong to motorized public travel which would include portions of 11 roads.

There would be 444 miles of BLM roads (75% of the current road system) open yearlong for motorized public travel, which would include portions of 431 roads.

This would be a decrease of 62 miles of BLM roads available for public motorized use yearlong, which would include portions of 11 roads.

There would be 95 miles of BLM roads open seasonally for public motorized travel.

- Includes portions of 62 roads
- 34 miles of 11 roads closed from 4/1-6/15 to protect bighorn sheep lambing areas
- 9 miles of three roads closed from 12/1-4/15 in the Woodhawk Bottom Recreation Area
- 52 miles of 48 roads closed from 9/1-12/1 in the Two-Calf and Woodhawk watersheds

Overall, this alternative would place an additional 22 miles under a seasonal restriction.

There would be 55 miles of BLM roads closed yearlong to motorized public travel.

- Includes portions of 39 roads
- An increase of 40 miles closed yearlong
- Portions of the roads could be designated for mechanized use (mountain bikes)

Road System Criteria – Fifty-six miles of vehicle ways (authorized roads) would remain open to public motorized travel in the six WSAs. This would include portions of 65 individual vehicle ways

Road Classification and Maintenance – The BLM roads would fall into the classification shown in Table 4.27.

The BLM roads would fall into the maintenance levels shown in Table 4.28.

Cattleguards would be installed as needed, along any of the 444 miles of BLM roads that would be open yearlong.

The 55 miles of closed BLM roads would be allowed to reclaim naturally.

Exceptions – Administrative motorized use could occur on 55 miles of BLM roads closed yearlong (portions of 39 roads). If a segment on these closed roads provides access to a facility and becomes impassable, spot maintenance could be authorized on a case-by-case basis.

Administrative cross-country motorized travel in the Monument would be allowed yearlong.

Table 4.27
BLM Road Classification – Alternative B

<i>Classification</i>	<i>Miles of Road</i>	<i>Number of Roads</i>	<i>Percent of Road System</i>
Collector	18	2	3%
Local	31	4	5%
Resource	545	526	92%
Total	594	532	100%

<p>Table 4.28 BLM Road Maintenance – Alternative B</p>			
<i>Maintenance Level</i>	<i>Miles of BLM Road</i>	<i>Number of Roads and Classification</i>	<i>Percent of Road System</i>
Level 1	55 Miles	39 Resource Roads	10%
Level 2	465 Miles	479 Resource Roads	78%
Level 3	8 Miles	1 Collector Road (Knox Ridge)	11%
	56 Miles	4 Local Roads and 8 Resource Roads	
Level 4	10 Miles	1 Collector Road (Cow Island)	1%

Motorized vehicles traveling the BLM roads that are open yearlong or open seasonally would be allowed to drive 300 feet off the roads to park and camp in the Monument. This would impact 539 miles along 493 BLM roads.

Alternative C

All BLM roads to state and private land (73 miles on 72 roads) would be open yearlong for administrative travel and private landowner use. Public use of these routes would be either yearlong or open seasonally. Sixteen miles of BLM resource roads that extend beyond various state land sections would be closed yearlong to motorized public travel. This would include portions of 38 roads. There would also be six miles of BLM resource roads would extend beyond various private land tracts, and would be closed yearlong to motorized public travel. This would impact portions of 11 roads.

There would be 407 miles of BLM roads open yearlong for public motorized and mechanized travel.

- Includes portions of 324 individual roads
- 69% of the existing road system.
- 99 fewer miles available than current management
- Includes 7 miles (portions of 10 of vehicle ways) in four WSAs

This would be a decrease of 99 miles available for motorized public use or a new restriction/limitation on 118 BLM roads and includes 7 miles on 10 BLM resource roads (vehicle ways) in four WSAs. Two miles on two BLM resource roads that provide motorized access to three backcountry airstrips would be closed.

There would be 94 miles of BLM roads open seasonally for motorized and mechanized public use, including portions of 64 roads. This would be a 21 mile increase (portions of six roads) from current management.

There would be 93 miles of BLM roads closed yearlong to motorized public travel (including portions of 44 roads).

These roads could be designated for mechanized (mountain bike) travel.

Road System Criteria – Six miles of BLM vehicle ways in four WSAs (Dog Creek South, Stafford, Ervin Ridge and Cow Creek) have reclaimed naturally and would be closed to public motorized travel.

There would be no impact to greater sage-grouse habitat, designated sensitive species or active bald eagle nests from the BLM road system.

There would be 51 BLM resource roads open seasonally, from April 1 through November 30, in big game winter range. This would include 50 two-track roads and 1 single lane road.

Seven BLM resource roads would be open seasonally, from June 16 through March 31, in bighorn sheep lambing areas.

Temporary road closures could occur on any segment of BLM resource roads (526 roads) in highly infested invasive weed areas.

Road Classification and Maintenance – The road classifications for the BLM transportation system would remain the same as Alternative A (Table 4.25).

The BLM roads would fall into the maintenance levels shown in Table 4.29.

Cattleguards would be installed as needed along any of the 407 miles of BLM roads that would be open yearlong.

The 93 miles of closed BLM roads either would be allowed to reclaim naturally or selected segments of these 44 closed roads could require ripping, scarifying and seeding with a native mixture to accomplish reclamation efforts. The Monument manager could approve a different seed mixture.

Table 4.29
BLM Road Maintenance – Alternative C

<i>Maintenance Level</i>	<i>Miles of BLM Road</i>	<i>Number of Roads and Classification</i>	<i>Percent of Road System</i>
Level 1	93 Miles	44 Resource Roads	16%
Level 2	427 Miles	474 Resource Roads	72%
Level 3	8 Miles 56 Miles	1 Collector Road (Knox Ridge) 4 Local Roads and 8 Resource Roads	11%
Level 4	10 Miles	1 Collector Road (Cow Island)	1%

Exceptions – Administrative motorized use could occur on 93 miles of closed roads yearlong. If a segment on these closed roads provides access to a facility and becomes impassable, spot maintenance could be authorized on a case-by-case basis.

Administrative cross-country motorized travel in the Monument would be allowed yearlong.

Big game retrieval would be allowed on 31 miles of BLM resource roads.

- Allowed between 10 a.m. and 2 p.m. and for 3 hours after sunset
- Allowed September 1 through December 1
- Includes portions of 44 BLM resource roads

Motorized vehicles traveling the BLM roads designated either open yearlong or open seasonally would be allowed to drive 150 feet off the road to park and camp in the Monument. This would impact 501 miles along 388 BLM roads.

Alternative D

All BLM roads to state and private land would be open yearlong for administrative travel and private landowner use.

Public use of these routes would be allowed yearlong or seasonally. This would involve 73 miles on 72 individual roads. BLM resource roads that extend beyond state land would be closed yearlong to motorized public travel. This would involve 16 miles on 38 individual roads. Also, BLM resource roads that extend beyond private tracts would be closed yearlong to motorized public travel. This would involve 6 miles and 11 individual roads.

There would be 287 miles of BLM roads would be open yearlong for public motorized travel.

- Includes 221 individual roads
- 48% of the existing road network

- Would be 219 fewer miles (portions of 221 roads) available for motorized public use

There would be 43 miles of BLM roads open seasonally to public motorized travel (from 64 individual roads).

There would be 264 miles of BLM roads closed yearlong to motorized public travel.

- Would involve 247 individual roads
- Would be 249 fewer miles (portions of 215 roads) available to motorized public use
- Includes 135 miles (portions of 146 roads) that either parallel an adjacent road or are short spur (one-way) roads

Some of the 594 miles of BLM roads could be designated for travel only by specific motorized vehicles (ATVs, motorbikes, four-wheel drives or snowmobiles) or only for mechanized use (mountain bikes).

Road System Criteria – The 56 miles of vehicle ways in the six WSAs would be closed to all public motorized travel.

Three BLM resource roads would be open seasonally, from March 16 through November 30, in greater sage-grouse habitat. This would include 2 two-track roads and 1 single-lane road.

Fifty-one BLM resource roads would be open seasonally, from May 16 through November 30, in big game winter range. This would be an additional 45 days these roads would be closed to public travel.

Seven BLM resource roads would be open to public motorized use seasonally, from June 16 through March 31, in bighorn sheep lambing areas.

Temporary road closures could occur on any segment of BLM resource roads (526 individual roads) to help reduce the spread of invasive weeds. Temporary closures could

also occur in any segment of the 31 miles of local roads (from four individual roads) for the same reason.

Road Classification and Maintenance – The road classifications for the BLM transportation system would remain the same as Alternative A (Table 4.25).

The BLM roads would fall into the maintenance levels shown in Table 4.30.

Cattleguards could be installed as needed, along any of the 287 miles of BLM roads that would be open yearlong.

The 264 miles of closed BLM roads would be reclaimed under site-specific reclamation plans that may require ripping, scarifying, and seeding with a native mixture to meet reclamation standards for the Monument. The Monument manager could approve a different seed mixture.

Exceptions – Administrative motorized use by the BLM, other federal agencies, and state and county agencies would be allowed on the 220 miles of BLM roads closed yearlong (portions of 247 individual roads). If a segment on these roads provides access to a facility and becomes impassable, spot maintenance could be authorized on a case-by-case basis. There could be some surface disturbance from road repair.

Cross-country travel in the Monument would be allowed yearlong for the BLM, other federal agencies, state and county agencies. Administrative cross-country motorized travel and travel on closed roads by lessees and permittees would comply with wildlife seasonal closures in effect for these closed roads.

Big game retrieval would be allowed on some BLM roads.

- Includes 50 miles
- Includes portions of 32 individual roads
- Allowed between 10 a.m. and 2 p.m.

Motorized vehicles traveling the BLM roads designated either open yearlong or open seasonally would be allowed to drive only 10 feet off the road to park the vehicle and camp in the Monument. This would impact 330 miles along 285 BLM roads.

Alternative E

All BLM roads to state and private land would be open yearlong for administrative travel and private landowner use. This would involve 73 miles on 72 individual roads. Public use of these routes would be allowed either yearlong or seasonally. BLM resource roads that extend beyond state land would be closed yearlong to motorized public travel. This would involve 16 miles on 38 individual roads. Also, BLM roads that extend beyond private tracts would also be closed yearlong to motorized public travel. This would involve 6 miles on 11 individual roads.

There would be 101 miles of BLM roads open yearlong for public motorized travel.

- Involves 30 individual roads
- 20% of current management
- Includes 2 collector roads (18 miles)
- Includes 4 local roads (31 miles)
- Includes 24 resource roads (52 miles)
- A 405 mile reduction (portions of 301 roads) from current management

Four miles of BLM roads would be open seasonally for public motorized travel (portions of 3 BLM roads).

There would 489 miles of BLM roads (including 499 individual roads) closed yearlong to motorized public travel. This would be an increase of 474 miles of closed roads from current management.

Some of the 594 miles of BLM roads could be designated for travel only by specific motorized vehicles (ATVs, motorbikes, four-wheel drives, snowmobiles) or only for mechanized use (mountain bikes).

Table 4.30 BLM Road Maintenance – Alternative D			
Maintenance Level	Miles of BLM Road	Number of Roads and Classification	Percent of Road System
Level 1	264 Miles	220 Resource Roads	45%
Level 2	256 Miles	268 Resource Roads	43%
Level 3	8 Miles	1 Collector Road (Knox Ridge)	11%
	56 Miles	4 Local Roads and 8 Resource Roads	
Level 4	10 Miles	1 Collector Road (Cow Island)	1%

Road System Criteria – The 56 miles of vehicle ways in the WSAs (portions of 65 vehicle ways) would be closed to motorized public travel.

Six miles of BLM roads would be open seasonally, from March 16 to November 30, in greater sage-grouse habitat. This would include portions of 3 BLM resource roads.

There would be 51 BLM resource roads open seasonally, from May 16 through November 30, in big game winter range. This would mean an additional 45 days these roads are closed to public travel.

Seven BLM resource roads would be open seasonally, from June 16 through March 31, in bighorn sheep lambing areas.

Temporary road closures could occur on any segment of BLM resource roads and the 31 miles BLM local roads in highly infested invasive weed areas.

Road Classification and Maintenance – The road classifications for the BLM transportation system would remain the same as under Alternative A (Table 4.25).

The BLM roads would fall into the maintenance levels shown in Table 4.31.

Cattleguards would be installed as needed along any of the 101 miles of BLM roads that are open yearlong.

The 489 miles of closed BLM roads would be reclaimed under site-specific reclamation plans that may require ripping, scarifying and seeding with a native mixture. The Monument manager could approve a different seed mixture to meet reclamation standards.

Exceptions – Administrative motorized use by the BLM, other federal agencies, and state and county agencies would be allowed on the 489 miles of BLM roads (portions of the 499 roads) closed yearlong. Lessees and permittees would need to obtain permission from the BLM to use these closed roads.

The BLM, other federal agencies, state and county agencies would not be allowed to travel off road (cross country). Lessees and permittees would be need to obtain permission form the BLM to travel cross country.

Big game retrieval would not be allowed on closed roads.

Motorized vehicles traveling the BLM roads designated either open yearlong or open seasonally would not be allowed to pull off the shoulder of the road to park and camp in the Monument. This would impact 105 miles along 33 BLM roads.

Alternative F (Preferred Alternative)

Seventy-three miles of BLM roads (12% of the road network) provide motorized administrative access to the state and private land tracts intermingled with the Monument. Of this, 15 miles on nine BLM roads provide legal motorized public access. The remaining 58 miles require the public to obtain private landowner permission to travel on these state or private land. Some of the BLM resource roads beyond these state or private tracts would be closed to motorized use by the general public to protect wildlife values and reduce soil erosion.

Motorized vehicle travel would occur on 207 miles of BLM roads open to public motorized or mechanized travel year-long.

- Includes 96 individual roads
- 41% of current management
- A reduction of 299 miles (portions of 346 roads) available for public motorized travel

Motorized vehicular or mechanized travel would also occur on another 171 miles of BLM roads open seasonally to protect Monument values. This would include 95 individual roads.

An estimated 216 miles of BLM roads would be closed to motorized and mechanized public travel throughout the year.

Table 4.31 BLM Road Maintenance – Alternative E			
Maintenance Level	Miles of BLM Road	Number of Roads and Classification	Percent of Road System
Level 1	489 Miles	499 Resource Roads	83%
Level 2	31 Miles	19 Resource Roads	5%
Level 3	8 Miles	1 Collector Road (Knox Ridge)	11%
	56 Miles	4 Local Roads and 8 Resource Roads	
Level 4	10 Miles	1 Collector Road (Cow Island)	1%

- Includes 341 individual roads
- Would reduce by 35% (or 201 miles) the roads available for public motorized use
- Most of these closed roads (183) are short spurs less than 1/2 mile in length or are parallel/redundant (51) roads.

Portions of the 216 miles of BLM closed roads could be designated for travel only by mechanized use (mountain bikes). This would be a significant increase in miles available only for mechanized use on BLM roads and would be a positive impact for this type of recreational non-motorized activity.

Road System Criteria – The six miles on 12 vehicle ways in four WSAs (Dog Creek South, Stafford, Ervin Ridge, and Cow Creek) that have reclaimed naturally would be closed yearlong to public motorized travel. Eight miles of vehicle ways (portions of 27 ways) in five WSAs would be closed yearlong to comply with wildlife objectives. Two miles of vehicle ways (portions of 11 ways) in three WSAs would be open seasonally to comply with wildlife objectives. Forty miles of vehicle ways would remain open to public motorized travel yearlong. This alternative would decrease by 25% the miles of vehicle ways in the six WSAs available for motorized public travel.

Six miles of BLM resource roads in Phillips County would be open seasonally, from April 1 through November 30, in greater sage-grouse habitat. This would include 3 resource roads.

There would be 51 BLM resource roads open seasonally, from April 1 through November 30, in big game winter range. This would include 50 two-track roads and 1 single-lane road.

Seven BLM resource roads would be open seasonally, from June 16 through March 31, in bighorn sheep lambing areas. This would include 6 two-track roads and 1 single-lane road.

Temporary road closures could occur on any segment of BLM resource roads in highly infested invasive weed areas.

Road Classification and Maintenance – The BLM roads would fall into the classification shown in Table 4.32.

The BLM roads would fall into the maintenance levels shown in Table 4.33.

Cattleguards could be installed as needed along any of the 207 miles of BLM roads that would be open yearlong.

Table 4.32 BLM Road Classification – Alternative F (Preferred Alternative)			
Classification	Miles of Road	Number of Roads	Percent of Road System
Collector	21	4	4%
Local	40	6	7%
Resource	533	522	89%
Total	594	532	100%

Table 4.33 BLM Road Maintenance – Alternative F (Preferred Alternative)			
Maintenance Level	Miles of BLM Road	Number of Roads and Classification	Percent of Road System
Level 1	216 Miles	341 Resource Roads	36%
Level 2	4 Miles 310 Miles	2 Local Roads (Woodhawk Bottom and Woodhawk Trail) 179 Resource Roads	53%
Level 3	8 Miles 36 Miles 7 Miles	2 Collector Roads (Knox Ridge and Timber Ridge) 4 Local Roads (Bullwhacker, Middle Two Calf, Lower Two Calf, Wood Bottom) 2 Resource Roads (Spencer Cow Camp and Butch Camp)	9%
Level 4	13 Miles	2 Collector Roads (Cow Island and Kipp)	2%

The 216 miles of closed BLM roads would either be allowed to reclaim naturally or selected segments of these 341 closed roads may require ripping, scarifying and seeding with a native mixture. The Monument manager could approve a different seed mixture to meet reclamation standards.

Exceptions – Administrative motorized use by the BLM, other federal agencies, state, county agencies, lessees and permittees would be allowed on the BLM roads closed yearlong (216 miles on portions of 341 BLM roads). If a segment of these closed roads provides access to a facility and becomes impassable, spot maintenance could be authorized on a case-by-case basis. There could be some new surface disturbance from road repair activities.

Administrative cross-country motorized travel would be allowed where necessary to administer the authorized permit. Any impacts associated with administrative travel would be limited to the permitted use area.

Big game retrieval would be allowed on about 50 miles of closed BLM roads.

- Allowed from 10 a.m. to 2 p.m.
- Allowed from September 1 through December 1
- Includes portions of 32 BLM roads

Motorized vehicles traveling along the estimated 378 miles of BLM roads that are open yearlong or open seasonally would be allowed to drive and park the vehicle 300 feet off the road to camp in the Monument. This would involve portions of 191 roads.

Motorized vehicles used for camping along the BLM vehicle ways within the six WSAs would be allowed to parallel park on these routes.

Aviation

Alternative A (Current Management)

The ten primitive, backcountry (primitive) grass landing strips located in the Monument would be available for aircraft and helicopter use throughout the year. No annual maintenance projects or safety work would be scheduled for the primitive airstrips.

The use of the airstrips would provide opportunities for recreational backcountry activities such as camping at undeveloped sites, hiking and sightseeing. Some aircraft activity could also occur during the hunting season.

These backcountry airstrips facilitate another mode of transportation where the visitor would not need a road or require public access to reach the BLM land.

The sounds associated with planes and helicopters landing and taking off may impact the solitude in that immediate area for a short duration.

Permitted commercially operated scenic flight tours using planes, helicopters, hot air balloons, or ultralights could be allowed to land in the Monument, including the 10 backcountry airstrips, as a part of their operation plan activity.

Alternative B

The ten identified existing backcountry airstrips would remain open for aircraft and helicopter operations yearlong under formal BLM right-of-way procedures. The BLM could provide additional primitive grass airstrips in the Monument if a NEPA analysis indicates a need for that type of infrastructure.

Permitted commercially operated scenic flight tours using aircraft, helicopters, hot air balloons, or ultralights could be allowed to land in the Monument, including the 10 backcountry airstrips, as a part of their operation plan activity.

Alternative C

Seven existing landing strips would remain open in the Monument. These airstrips would be identified on the Montana Aeronautical Chart.

The Cow Creek and Knox Ridge primitive airstrips would be open for aircraft use yearlong.

The use of three backcountry landing strips (Left Coulee, Bullwhacker, and Black Butte North) would be allowed seasonally, from April 1 to November 30, to comply with big game winter range wildlife habitat requirements.

The use of the Ervin Ridge and Woodhawk landing strips would be allowed seasonally, from June 16 to November 30, to comply with big game winter habitat and bighorn sheep lambing area restrictions.

The three remaining landing strips (Roadside, Log Cabin, and Black Butte South) would be closed to aircraft and marked with the international Federal Aviation Administration (FAA) symbol to prevent any accidental landings. These airstrips would be allowed to reclaim naturally.

Aircraft use could either be less or more concentrated on fewer landing strips in the Monument.

Maintenance agreements with user groups could be implemented to conduct minimal work to meet aeronautical safety standards for backcountry landing strips. Any sur-

face-disturbing activity would be done by hand to meet the light on the land criteria.

Permitted commercially operated scenic flight tours using aircraft, helicopters, hot air balloons, or ultralights could be allowed to land or take off only from the seven primitive landing strips in the Monument as a part of their operation plan activity. Additional seasonal restrictions may apply to the commercial use of these seven backcountry airstrips.

Alternative D

Six primitive grass landing strips would remain open and listed on the Montana Aeronautical Chart.

The Cow Creek and Knox Ridge backcountry airstrips would be open for aircraft use yearlong.

The use of three primitive landing strips (Left Coulee, Bullwhacker, and Black Butte North) would be allowed seasonally, from April 1 to November 30, to comply with big game winter range wildlife habitat requirements.

The use of the Ervin Ridge landing strip would only be allowed from June 16 to November 30, to comply with big game winter habitat and bighorn sheep lambing area restrictions.

The four remaining airstrips (Roadside, Log Cabin, and Black Butte South on the north side of the river and Woodhawk on the south side of the river) would be closed to aircraft and marked with the international FAA symbol to prevent any accidental landings. These four airstrips would be allowed to reclaim naturally.

There would be four fewer primitive landing strips available for occasional aircraft use which could concentrate more aircraft use on fewer landing strips.

Permitted commercially operated scenic flight tours using planes, helicopters, hot air balloons or ultralights would be required to land or take off only from certain designated landing areas. Not all of the six backcountry airstrips would be available for these commercial activities. Additional seasonal restrictions may apply to commercial use on some of these six backcountry airstrips.

Alternative E

No primitive grass landing strips would allowed in the Monument. All 10 existing backcountry airstrips would be closed. These would be marked with the international FAA closed symbol and allowed to reclaim naturally.

No commercially operated scenic flight tours using planes, helicopters, hot air balloons or ultralights would be allowed to use these landing strips.

Alternative F (Preferred Alternative)

Six backcountry airstrips would remain open and listed on the Montana Aeronautical Chart. The Cow Creek and Knox Ridge primitive airstrips would be open for aircraft use yearlong.

The use of three primitive landing strips (Left Coulee, Bullwhacker, and Black Butte North) would be allowed seasonally, from April 1 to November 30, to comply with big game winter range wildlife habitat requirements.

The use of the Ervin Ridge landing strip would be allowed seasonally, from June 16 to November 30, to comply with big game winter habitat and bighorn sheep lambing area restrictions.

The four remaining airstrips (Roadside, Log Cabin, and Black Butte South on the north side of the river and Woodhawk on the south side of the river) would be closed to aircraft and marked with the international FAA symbol to prevent any accidental landings. These four landing strips would be allowed to reclaim naturally.

Aircraft use could either be less or more concentrated on fewer landing strips in the Monument.

Some of the airstrips could be used as trailheads for hiking trail systems to various segments of the Monument.

This alternative would allow occasional small plane use to access the Monument.

Permitted commercially operated scenic flight tours using planes, helicopters, hot air balloons or ultralights would be required to land or take off only from certain designated landing areas. Not all six of the backcountry landing strips would be available for these commercial activities. Additional seasonal restrictions may apply to commercial use on some of these six backcountry airstrips.

Summary of Cumulative Impacts to Transportation

Alternative A (Current Management)

An estimated 579 miles (97% of the current transportation network) would remain open for motorized public travel. No additional roads would be available for public use, nor would cross-country (off-road) travel be permitted unless authorized on a case-by-case basis for administrative activities.

Fifteen miles (32 BLM roads) would be designated closed to public motorized travel.

Increased motorized travel volume would be anticipated with increased recreation visits.

The current high road density or low spatial landscape ratio for BLM roads in the Monument would remain. About 90% of the Monument is within 1 mile of an open BLM road (yearlong or seasonally) with .99 miles per square mile.

There would be no change in the density, both miles (73) and number (72) of BLM roads that provide access to state land or private land, nor would there be any change in the current spatial landscape (the number of acres between roads) in the Monument. Motorized travel on the BLM roads that beyond private land would be allowed to continue at the discretion of the landowner.

The 65 vehicle ways (56 miles of open roads) in the six WSAs would continue to be available for any type of motorized travel throughout the year.

Aircraft use on the 10 backcountry airstrips could increase without any constraints.

Alternative B

There would be 12% fewer miles of BLM roads available for public motorized travel yearlong. This open category would account for 75% of the Monument transportation plan.

The number of roads within 1 mile of BLM land would remain about the same (86%), as would the spatial landscape ratio. About 88% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .92 miles per square mile.

The number of vehicle ways open in the WSAs would remain the same.

The BLM would allow use of the 10 backcountry airstrips.

Alternative C

There would be 20% fewer miles of BLM roads available for motorized public travel yearlong. This open category would account for 69% of the Monument transportation plan. The closed BLM roads would increase from 8% (32 roads) to 11% (44 roads), a difference of 12 roads.

There would be 18% fewer miles of vehicle ways open in the WSAs.

The BLM would allow use of seven backcountry airstrips, a 30% decrease from the existing situation.

About 85% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .86 miles per square mile.

Alternative D

There would be 43% fewer miles of BLM roads available for motorized public travel yearlong. This open category would account for 48% of the Monument transportation plan. The closed BLM roads would increase from 8% (32 roads) to 59% (247 roads), a difference of 215 roads.

The number of roads within 1 mile of BLM land would decrease and the spatial landscape ratio would increase. About 76% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .56 miles per square mile.

All 65 vehicle ways (100%) in the six WSAs would be closed to motorized vehicle traffic.

The BLM would allow the use and the maintenance of six backcountry landing strips, a 40% decrease from the existing situation. Only two of the landing strips, Cow Creek and Knox Ridge, would be available for yearlong activity. Four backcountry airstrips would be closed permanently. Although there would be fewer landing strips in use, yearly aircraft activity could increase on the remaining six airstrips.

Alternative E

There would be 80% fewer miles of BLM roads available for motorized public travel yearlong. This open category would account for 17% (a decrease of 301 roads) of the Monument transportation plan. The closed BLM roads would increase from 8% (32 roads) to 92% (388 roads), a difference of 356 roads unavailable for public motorized travel.

The number of roads within 1 mile of BLM land would decrease to its lowest level and the spatial landscape ratio would increase to its highest level. About 31% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .18 miles per square mile.

There would be no public motorized travel on the vehicle ways in the six WSAs. Non-motorized activities could increase in the WSAs.

The 10 backcountry landing strips would be closed.

Alternative F (Preferred Alternative)

There would be 59% fewer miles of BLM roads available for motorized public travel yearlong. This open category

would account for 35% of the miles (a decrease of 301 roads) of the Monument transportation plan. Conversely, 36% of the miles would be closed yearlong to public travel by motorized vehicles.

The density, in both miles and number of BLM roads, would be less than currently exists in the Monument. This represents a change from 506 miles (96%) on 500 BLM roads to 207 miles on 191 designated BLM roads that would be open to motorized vehicle traffic sometime during the year.

There could be a decrease in traffic volume on these roads associated with motorized travel by the general public.

The spatial landscape ratio (the number of acres between BLM road systems) would increase accordingly with the decrease in the roads. About 90% of the Monument would be within 1 mile of an open BLM road (yearlong or seasonally) with .65 miles per square mile.

There would be less potential for the spread of noxious weeds by motorized vehicle traffic with fewer roads.

Fewer roads would be available for recreationists, including those hunters who use motorized travel to conduct their hunting activities in the Monument.

There would be no change in the density (73 miles and 72 BLM roads) or spatial landscape values for motorized travel to state and private land intermingled with the Monument. The use of the roads that extend beyond the state or private land intermingled with the Monument would also decrease as 16 miles on 38 BLM roads would be closed to the public.

There would be fewer miles (25%) and fewer vehicle ways (60%) available for public motorized traffic in the WSAs yearlong. This would improve the solitude and primitive wilderness values for the six WSAs.

The BLM would allow the recreational use by aircraft and the maintenance of six backcountry airstrips. Only two of the landing strips, Cow Creek and Knox Ridge, would be available for yearlong activity. Four backcountry airstrips would be closed permanently. Although there would be fewer landing strips in use, yearly aircraft activity may increase on the remaining six airstrips. Backcountry pilots would be able to utilize aircraft to recreate in portions of the Monument. Some of the open airstrips could be used as trailheads for hiking trail systems to various segments of the Monument.

Fire

Impacts to Fire from Health of the Land and Fire

Prescribed Fire

Alternative A (Current Management)

Restrictions on surface disturbance in sage-grouse crucial winter habitat (December 15-May 15) could affect the BLM's ability to carry out prescribed fire projects during the most advantageous time of year. This involves 6,866 acres of winter habitat. Surface-disturbing activities for special status raptors would require mitigation of impacts in order to carry out prescribed fire activities within the area of concern.

Under current watershed plans in the Monument (Armells, Upper Missouri, Arrow Creek and the Monument portion of the Bears Paw to Breaks) there are approximately 35,000 acres of possible prescribed fire projects. Assuming adequate burn windows, budget and personnel, over a 10-year period the BLM would expect completion of approximately 3,500 acres of prescribed fire per year.

Fire Management Units (FMUs)

In the Wild and Scenic River and Wilderness Study Areas FMUs, prescribed fire use would be limited to those projects that protect public safety and protect resource values.

In the North Monument and South Monument FMUs, prescribed fire use would be limited to those projects that protect public safety and protect resource values or achieve resource objectives.

Alternative B

Mitigating surface-disturbing activities near special status raptors would impact prescribed fire activities.

Establishing resource reserve allotments would increase opportunities for prescribed burn projects by allowing another option for grazing during the rest cycle following the burn.

This alternative would allow prescribed fire only in the Wilderness Study Areas FMU. The number and size of the potential prescribed fire projects would depend on ecological need to introduce fire. Fire Regime Condition Class (FRCC) surveys would tell how many acres may be out of the historic fire interval and the risk of losing key components of the ecosystem to wildland fire. For example, if out of 90,000 acres, 30,000 acres are in FRCC class 2 and 3 (class 1 is optimal), the BLM would consider returning that

30,000 acres to Condition Class 1 over 20 years, or about 1,500 acres per year.

Fire Management Units

There would be no prescribed fire would be used in the Wild and Scenic River, North Monument or South Monument FMUs.

Prescribed fire in the Wilderness Study Areas FMU would be limited to those projects that protect public safety and protect resource values or achieve resource objectives.

Alternative C

Allowing no surface disturbance in big game winter range from December 1 to March 31 could adversely impact the use of prescribed fire to improve winter range. This involves about 265,559 acres of winter range.

Establishing resource reserve allotments would increase opportunities for prescribed burn projects by allowing another option for grazing during the rest cycle following the burn.

The emphasis for prescribed fire would be on reducing hazardous fuel buildup where wildland fire would threaten private and public structures and improvements. Prescribed fire activity would be based on current direction included in the BLM Fire/Fuels Management Plan Environmental Assessment/Plan Amendment (BLM 2003e) and the various watershed plans that include Monument land. Prescribed fire potential acres would be less than Alternative A because hazardous fuels would be the target of most prescribed fire activities with some range and wildlife related burns. An estimate for the Monument as a whole would involve treating 20,000 acres in 10 years or 2,000 acres per year.

Fire Management Units

There would be no prescribed fire in the Wild and Scenic River FMU.

Prescribed fire in the Wilderness Study Areas FMU would be limited to those projects that would protect public safety and resource values or achieve resource objectives. Prescribed fire treatments could involve approximately 5,200 acres over 10 years.

Prescribed fire in the North Monument FMU would be limited to those projects that protect public safety and resource values or achieve resource objectives. Prescribed fire treatments could involve approximately 6,600 acres over 10 years.

Prescribed fire in the South Monument FMU would be limited to those projects that protect public safety and resource values or achieve resource objectives. Prescribed fire treatments could involve approximately 8,200 acres over 10 years.

Alternative D

Restrictions to protect special status raptor and bald eagle nesting sites that may not be active could affect the BLM's ability to conduct prescribed fires in the vicinity. Allowing no surface disturbance in big game winter range from December 1 to May 15 could adversely affect the use of prescribed fire to improve winter range. This involves about 265,559 acres of winter range.

Establishing resource reserve allotments would increase opportunities for prescribed burn projects by allowing another option for grazing during the rest cycle following the burn.

Prescribed fire projects would include the projects proposed in the Armells, Upper Missouri, Arrow Creek and the Monument portion of the Bears Paw to Breaks watershed plans. New projects would be proposed based on FRCC analysis. Initial findings suggest that a large part of the Monument is outside its historic fire return interval. Thus, proposal of a substantial number of additional prescribed fire projects would be expected.

Fire Management Units

Prescribed fire in the Wild and Scenic River FMU would be limited to those projects that protect public safety and protect resource values or achieve resource objectives.

Prescribed fire in the Wilderness Study Areas FMU would be used to augment wildland fire in returning fire to its historic regime. Prescribed fire could involve significantly more acres than Alternatives A, B, and C (approximately 6,200 acres of proposed prescribed fire projects plus 45,000 acres of FRCC class 2 and 3).

Prescribed fire in the North Monument FMU would be used to augment wildland fire in returning fire to its historic fire regime. Prescribed fire could involve significantly more acres than Alternative A, B, and C (approximately 5,000 acres of proposed prescribed fire projects plus 100,000 acres of FRCC class 2 and 3).

Prescribed fire in the South Monument FMU would be used to augment wildland fire in returning fire to its historic fire regime. Prescribed fire could involve significantly more acres than Alternatives A, B, and C (approximately 20,000 acres of proposed prescribed fire projects plus 105,000 acres of FRCC class 2 and 3).

Alternative E

Restrictions protecting bald eagle nesting sites that may not be active could affect the BLM's ability to implement prescribed fire activities without mitigation. Allowing no surface disturbance in big game winter range could adversely affect the use of prescribed fire to improve winter range.

Not establishing resource reserve allotments could negatively impact range restoration using prescribed fire due to lack of areas to move cattle during seasonal rest periods.

Prescribed fire acres would probably be similar to Alternative D, minus the FRCC class 2 and 3 acres. Those acres would be accomplished using prescribed wildland fire. In the Wild and Scenic River FMU, prescribed fire acres would probably be less than 10,000 acres in 10 years.

Fire Management Units

Prescribed fire in the Wild and Scenic River FMU would be limited to those projects that protect public safety and protect resource values or achieve resource objectives.

Prescribed fire in the North Monument, South Monument, and Wilderness Study Areas FMU would be used to augment wildland fire in returning fire to its historic regime. Prescribed fire could involve significantly more acres than Alternatives A, B, and C.

Alternative F (Preferred Alternative)

Restrictions protecting bald eagle nesting sites that may not be active could affect the BLM's ability to implement prescribed fire activities without mitigation. Allowing no surface disturbance in big game winter range from December 1 to March 31 could adversely impact the use of prescribed fire to improve winter range. This involves about 265,559 acres of winter range.

Establishing resource reserve allotments would increase opportunities for prescribed burn projects by allowing another option for grazing during the rest cycle following the burn.

Prescribed fire acres would probably be similar to Alternative D, minus the FRCC class 2 and 3 acres. Those acres would be accomplished using prescribed wildland fire. In the Wild and Scenic River FMU, prescribed fire acres would probably be less than 10,000 acres in 10 years.

Fire Management Units

Prescribed fire in the Wild and Scenic River FMU would be limited to those projects that protect public safety and protect resource values or achieve resource objectives.

Prescribed fire in the North Monument, South Monument, and Wilderness Study Areas FMU would be used to augment wildland fire in returning fire to its historic regime. Prescribed fire could involve significantly more acres than Alternatives A, B, and C.

Wildland Fire

Alternative A (Current Management)

There would be no anticipated changes from the historical average number of fires or acres under this alternative. The fire history over the last 15 years provides a comparison in these FMUs.

- In the Wild and Scenic River FMU there have been 27 fires for 1,337 acres; an average of 1.8 fires per year for 89 acres.
- In the Wilderness Study Areas FMU there have been 37 fires for 4,219 acres; an average of 2.5 fires per year for 218 acres.
- In the North Monument FMU there have been 45 fires for 5,023 acres; an average of 3 fires per year for 335 acres.
- In the South Monument FMU there have been 44 fires for 2,979 acres; an average of 3 fires per year for 199 acres.

Alternative B

Wildland fire numbers would remain similar to Alternative A, but could involve fewer acres. Under this alternative, aggressive fire suppression would be based on allowing the fewest number of acres burned without regard to cost per acre.

This alternative would reduce the estimated acreages in each FMU that could be subject to wildland fire.

- The Wild and Scenic River FMU could experience a 10% reduction. Even with increased suppression response, access would make it difficult to reduce acres burned to a significant extent.
- In the Wilderness Study Areas FMU there would be no change because of existing fire suppression guidelines based on low impact suppression methods.
- The North Monument FMU could realize a 20% reduction based on better access and no existing restraints on suppression methods.
- The South Monument FMU could realize a 20% reduction based on better access, and no existing restraints on suppression methods.

Alternative C

Fire suppression acreage figures would be similar to Alternative B.

Alternative D

The number of acres subject to wildland fire would increase, except in the Wild and Scenic River FMU. Suppression would be based on appropriate response and fires would be allowed to burn to natural barriers if the fire is not a threat to life, property or resource values. Suppression costs could be lower than other alternatives.

- In the Wild and Scenic River FMU there would be no change from Alternatives B and C.
- The Wilderness Study Areas FMU could experience an estimated 50% increase in acres from a 15 year base.
- The North Monument FMU could experience an estimated 50% increase in acres from a 15 year base.
- The South Monument FMU could experience an estimated 40% increase in acres from a 15 year base.

Alternative E

In the Wild and Scenic River FMU, the appropriate suppression response would be used for fire suppression and public safety and resource protection. Fire management in the rest of the Monument would emphasize a maximum return of fire on the landscape. A wildland fire use plan would be developed for the Wilderness Study Areas, North Monument and South Monument FMUs. The maximum acreage under this plan would be based on the historical fire regime. Fires managed under prescription could be large and at times disruptive to recreation activities in the Monument. Estimating the scope of wildland fire under this alternative is difficult, but activity would increase significantly over all other alternatives.

Alternative F (Preferred Alternative)

There would be no anticipated changes from the historical average number of fires or acres under this alternative. Fire suppression acreage figures would be similar to Alternative A.

Impacts to Fire from Visitor Use, Services and Infrastructure

Alternatives A (Current Management) and B

Large events or large groups, if permitted during the fire season, could increase the need for fire prevention efforts and workload. Not providing campfire rings or requiring camp stoves, fire pans or mats at Level 4 opportunities could increase the fire prevention workload. Preventable fire would increase suppression workload during the fire season.

Alternatives C and D

Large events or large groups, if permitted during the fire season, could increase the fire prevention workload.

Alternative E

There would be no impact.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C and D.

Impacts to Fire from Access and Transportation

Alternatives A (Current Management) and B

Allowing unrestricted use of all airstrips in the Monument could reduce the ability of aerial fire fighting resources to operate in the air space safely. Floatplane activity could cause airspace problems during emergency activities.

Alternatives C and D

Closing airstrips during fire activity in the Monument would lessen safety concerns. Floatplane activity could cause airspace problems during emergency activities.

Alternative E

There would be no impact.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C and D.

Summary of Cumulative Impacts to Fire

Alternatives A, B, C, D, E, and F (Preferred Alternative)

There would be no additional impacts, other than those described above, from any combination of actions.

Wilderness Study Areas

Impacts to Wilderness Study Areas Common to All Alternatives

Timber harvest, which includes thinning projects, would not be authorized under the non-impairment standard and criteria described in the BLM's Interim Management Policy

and Guidelines for Lands Under Wilderness Review (BLM Manual H-8550-1).

Livestock grazing management would continue to use existing grazing plans. Fencing along allotment boundaries would be allowed on case-by-case basis under the Interim Management Policy using BLM specifications and standards.

Aggressive wildland fire suppression efforts would continue during extreme drought years, but fire management plans must adhere to all Interim Management Policy prescriptions. The WSAs provide large areas of the VRM Class I designation and these areas would be impacted by large fires.

Special recreation permits would continue to be authorized in the WSAs for commercial, competitive, organized group activities on a case-by-case basis if they do not conflict with the non-impairment standard and criteria. Group size could be limited, depending upon the activity.

Impacts to Wilderness Study Areas from Health of the Land and Fire

Fire

Alternative A (Current Management)

This alternative would allow fire suppression within WSAs at an appropriate response level for natural caused fires. For most wildland fires, the WSA Interim Management Policy emphasizes the minimum tool (hand tools) approach to fire fighting measures. This scenario would be most unlikely unless the drought diminishes. Consequently, typical initial attack of wildland fires, including back burns and retardants, would continue to be utilized in an attempt to preserve the scenic quality of the Missouri River's timbered Breaks. Prescribed fire is a limited management tool for managing fire in WSAs, and Interim Management Policy encourages the natural role of fire.

Alternative B

Fire suppression tactics would use all available resources during high drought periods if private properties are threatened and/or for public safety reasons. Fire response measures in WSAs that are more aggressive than minimum tool would be at the BLM's discretion; however, the emphasis would be to limit impacts to the landscape. Prescribed fire is a limited management tool for managing fire in WSAs, and management discretion to use this fire management technique is limited.

Alternative C

The impacts would be similar to Alternative A, but with an emphasis toward wildland fire's natural role in the WSAs. Prescribed fire would give managers the latitude needed to exercise a range of options when these occurrences have the potential to impact private property and/or public safety.

Alternative D

Under this alternative, naturally occurring conditions or lightning starts would allow a large degree of management flexibility. An appropriate response level (minimum tool if possible) would enable the BLM to better manage the WSAs consistent with the non-impairment standard and criteria.

Alternative E

This is the least restrictive and most natural alternative for managing fire in the WSAs and would utilize the natural role of fire when and where possible. However, management strategies would use well defined weather patterns and moisture regimes in the rugged Breaks topography, along with social sensitivity levels about fire's natural role before making any decision to employ heavy fire fighting suppression tactics.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternative D.

Range Improvements

Alternative A (Current Management)

Fencing improvements would continue to follow BLM standards to enable wildlife movement. Existing water developments would be a critical component within the WSAs due to a lack of natural water sources other than the river in the summer and fall months. All water developments would be maintained under the Interim Management Policy.

Alternatives B, C, D, E and F (Preferred Alternative)

New water developments would not be permitted within the WSAs. Maintenance of existing water developments would be permissible under the Interim Management Policy. Such developments (including fences), if not maintained, would be removed and reclaimed. Crossing structures could help facilitate the movement of livestock and perhaps wildlife through the WSAs. Relocating fences to better follow topography would complement and improve the character of the area.

Visual Resource Management (VRM)

Alternative A (Current Management)

Under current management, about 16% of the WSAs are in VRM Class I, 19% in VRM Class II, and 65% in VRM Class IV. However, under the non-impairment standard, most activities must be temporary uses that create no surface disturbance, nor involve permanent placement of structures.

Alternatives B, C, D, E and F (Preferred Alternative)

These alternatives designate a VRM Class I rating for all the WSAs (74,650 acres). These alternatives would preserve the scenic quality of the WSAs.

Rights-of-Way

Alternative A (Current Management)

Under current management about 42% of the WSAs are in avoidance areas and 58% in exclusion areas. of the six WSAs excludes ROW approvals. However, under the non-impairment standard, most activities must be temporary uses that create no surface disturbance, nor involve permanent placement of structures.

The WSAs not designated by Congress would be subsequently managed in accordance with adjacent BLM land. Those areas within the Cow Creek ACEC and recreation and scenic sections of the UMNWSR would be avoidance areas and those areas within the wild sections of the UMNWSR would be exclusion areas.

Alternative B

All the WSAs would be exclusion areas (74,650 acres).

The WSAs not designated by Congress would be subsequently managed in accordance with adjacent BLM land. Those areas within the Cow Creek ACEC and scenic sections of the UMNWSR would be avoidance areas and those areas within the wild sections of the UMNWSR would be exclusion areas.

Alternative C

All the WSAs would be exclusion areas (74,650 acres).

The WSAs not designated by Congress would be subsequently managed as avoidance areas except those areas within the wild sections of the UMNWSR.

Alternatives D and E

All the WSAs would be exclusion areas (74,650 acres).

The WSAs not designated by Congress would be subsequently managed as exclusion areas.

Alternative F (Preferred Alternative)

The impacts would be the similar as Alternative C, but exceptions to the exclusion area category could be granted and would be handled on a case-by-case basis, depending on the nature of the proposal and the level of impact.

Impacts to Wilderness Study Areas from Visitor Use, Services and Infrastructure

Alternative A (Current Management)

Current management of special recreation permits (SRPs) in the WSAs allows authorization of commercial big game outfitting, organized group activities and certain competitive events without considering carrying capacities.

There are 12 authorized big game commercial outfitters operating within a portion of the six WSAs, and these operators have defined area(s), usually within a ranch boundary, where they conduct their business. An unlimited number of SRPs could be issued under this alternative, subject to the non-impairment standard and criteria.

Commercial auto tours and special event SRPs would be authorized on a case-by-case basis and an unlimited number of these permits could be issued. Currently, SRP group size within a WSA is not limited, but restrictions on the number of people or recreational livestock may occur within the WSAs.

Alternative B

The impacts would be similar to Alternative A, except big game commercial outfitters would be assigned to the entire Monument. There would be 14 commercial outfitters potentially operating within the six WSAs.

Alternative C

The impacts would be similar to Alternative A, except big game commercial outfitters would be assigned to the entire Monument and the number of outfitters would be limited to 14 who could potentially operate within the six WSAs.

Alternative D

The impacts would be similar to Alternative A, except only a portion of five of the WSAs (32,500 acres) are within

areas identified with limited public access, which would be assigned to big game commercial outfitters. An unlimited number of SRPs could be issued under this alternative, subject to the non-impairment standard and criteria.

Alternative E

The impacts would be similar to Alternative A, except only a portion of the six WSAs (42,150 acres) are within areas identified with public access, which would be assigned to big game commercial outfitters. An unlimited number of SRPs could be issued under this alternative, subject to the non-impairment standard and criteria.

Alternative F (Preferred Alternative)

This alternative is the same as Alternative A, except that big game commercial outfitter SRPs would be limited to present levels of use in the WSAs. Commercial auto tour operator permits, while not being limited at a specific number, would be limited to two vehicles per operator a day.

Impacts to Wilderness Study Areas from Natural Gas Exploration and Development

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

One leased parcel of 1,441 acres exists within the Ervin Ridge WSA. Solitude and other opportunities for a wilderness experience would be lost if this lease is developed. Under Alternatives A, B, and C it is reasonably foreseeable one new natural gas well could be drilled on this lease

within the WSA. Under Alternatives D, E, and F it is reasonably foreseeable no new natural gas wells would be drilled on this lease.

Impacts to Wilderness Study Areas from Access and Transportation

BLM Road System

Alternatives A (Current Management) and B

The use of designated vehicle ways in WSAs would continue. There are 65 vehicle ways in the WSAs totaling 56 miles (Table 4. 34). However, 6 miles of vehicle ways have reclaimed naturally. The potential for soil erosion and vegetation decline would increase under this alternative.

The use of non-motorized/mechanized game carts would be prohibited. While using game carts would give the hunters opportunity to hunt further from vehicles, allowing this activity could create new trails along ridges and within riparian areas and introduce exotic plant species into the WSAs.

Alternative C

The impacts would be similar to Alternative B, but allowing vehicle ways to reclaim naturally would be consistent with VRM Class I designations. Six miles of vehicle ways would be closed (Table 4.35). Not seeing numerous roads from the air or ground would improve the scenic quality value of the WSAs and ultimately enhance visitor satisfaction and experience when seeking pristine or primitive

Table 4.34 Vehicle Ways in Wilderness Study Areas – Alternative A (Current Management)							
Miles	Stafford	Ervin Ridge	Cow Creek	Antelope Creek	Woodhawk	Dog Creek	Total Miles
Open	3	10	24	11	2	6	56
Closed	0	0	0	0	0	0	0
Total	3	10	24	11	2	6	56

Table 4.35 Vehicle Ways in Wilderness Study Areas - Alternative C							
Miles	Stafford	Ervin Ridge	Cow Creek	Antelope Creek	Woodhawk	Dog Creek	Total Miles
Open	2	9	21	11	2	5	50
Closed	1	1	3	0	0	1	6
Total	3	10	24	11	2	6	56

environments. Game carts would be allowed on closed vehicle ways.

Alternative D

The impacts would be similar to Alternative C, but administratively closing all vehicle ways is consistent with the intent and purpose of the Interim Management Policy. Access to remote or popular areas within the WSAs that have heretofore been accessible by vehicle would end and ultimately impact some visitor experiences. However, not being able to drive to these locations could improve opportunities for wilderness visitors seeking solitude and pristine conditions without motorized assistance. Game carts would be allowed on closed vehicle ways.

Alternative E

The impacts would be similar to Alternative D, except game carts would not be allowed on closed vehicle ways.

Alternative F (Preferred Alternative)

The impacts would be similar to Alternative B, but allowing vehicle ways to reclaim naturally would be consistent with VRM Class I designations. Fourteen miles of vehicle ways would be closed and two miles would be closed seasonally. Not seeing numerous roads from the air or ground would improve the scenic quality value of the WSAs and ultimately enhance visitor satisfaction and experience when seeking pristine or primitive environments. Game carts would be allowed on closed vehicle ways.

Aviation

Alternative A (Current Management)

Current management allows continued use of the backcountry airstrip in the Ervin Ridge WSA. Airplane viewing of the Missouri Breaks is an ongoing and popular activity. Continued use of the Ervin Ridge airstrip could provide pilots with the ability to load or unload commercial passengers under an SRP. However, use levels of this airstrip are unknown at the present time. Hunters may also occasionally use the Ervin Ridge airstrip. Because of public safety concerns, military overflights may limit some recreational use of the airspace in and around the Monument to a certain extent. Military overflight noise levels also are a source of concern for wilderness visitors; much more than a small fixed-wing aircraft.

Alternative B

The impacts would be similar to Alternative A, except the vehicle way to the Ervin Ridge airstrip would be closed seasonally from April 1 to June 15.

Alternatives C and D

The impacts would be similar to Alternative A, except the vehicle way to the Ervin Ridge airstrip would be closed yearlong and the airstrip would be closed seasonally from December 1 to June 15.

Alternative E

No airstrips would be open under this alternative. This would enhance WSA values.

Alternative F (Preferred Alternative)

The impacts would be the same as Alternatives C and D.

Summary of Cumulative Impacts to Wilderness Study Areas

Alternatives A (Current Management) and B

The WSAs are being maintained along with the UMNWSR, which includes a portion of each WSA. Today, the WSAs are in good condition, with some exceptions where vehicle and/or boating traffic have affected the resource.

The cumulative impacts of visitor crowding and repeated use of campsites along the river and/or on vehicle ways in the WSAs would create the potential to affect the wilderness resource at all six WSAs.

Geocaching using Global Positioning System devices could occur deep within the WSAs if all vehicle ways remain open.

Alternative C

The impacts would be similar to those in Alternative A, except restricting spring and fall use of WSA vehicle ways would protect the sensitive vegetation and soil resources.

Alternative D

The impacts would be similar to those in Alternative A, except closing all the WSA vehicle ways would protect the sensitive vegetation and soil resources.

Alternative E

Not allowing the use of game carts on closed vehicle ways in the WSAs is consistent with the non-impairment standard and criteria and would protect the landscape from other potential future mechanical or mechanized trends in recreation.

Alternative F (Preferred Alternative)

This alternative could produce more effective and efficient management of the WSAs through controlled recreational access, a backcountry airstrip seasonal restriction and visual resource management objectives for Class I areas. The area could see an increase in visitors seeking the solitude common in the six WSAs.

Social

Impacts to Social Common to All Alternatives

No alternative would affect the demographics, major social trends, or social organization in the local communities of the planning area.

Under all alternatives, individuals with disabilities could request a permit to travel on closed roads consistent with the Rehabilitation Act of 1973. Such access would be considered on a case-by-case basis by the Monument manager.

Environmental Justice

During the course of this analysis, no alternative considered resulted in any identifiable effects or issues specific to any minority or low income population or community. The agency has considered all input from persons or groups regardless of age, race, income status, or other social or economic characteristics.

Impacts to Social from Health of the Land and Fire

Alternative A (Current Management)

Under this alternative, management for wildlife, fire, vegetation, livestock grazing and other activities would continue as it has under the State Director's Interim Guidance. This would agree with people, particularly those living in the local area, who would prefer little change in management.

During scoping, the BLM received many comments that groups and individuals who give a high priority to resource protection would feel wildlife habitat would not be adequately protected under this alternative.

Most local residents would want wildland fires to be fought as aggressively as possible. This alternative plans for about 3,500 acres of prescribed fire annually based on public safety and resource values, which may be a concern to local residents.

Alternative B

Under this alternative, fire, vegetation, livestock grazing and other activities would be managed more intensively than under any other alternative. This would agree with the management goals of those groups and individuals who give a high priority to resource use.

Wildlife habitat would be enhanced. The groups and individuals who give a high priority to resource protection may feel wildlife habitat would be adequately protected under this alternative.

Wildland fire would be fought most aggressively under this alternative. Most local residents want wildland fires to be fought aggressively using all available methods. The limited use of prescribed fire considered under this alternative would probably be acceptable to local residents.

Resource reserve allotments would be established under this alternative. If made available, these allotments could allow added livestock grazing management flexibility.

Alternative C

Wildlife habitat would be enhanced and the social effects would be similar to Alternative B.

The social effects of wildland fire suppression would be similar to Alternative B, except in WSAs wildland fires would not be fought as aggressively. The social effects of prescribed fire would be similar to Alternative A.

The effects to ranchers from livestock grazing management would be the same as Alternative B.

Alternative D

Wildlife habitat would be enhanced. The groups and individuals who give a high priority to resource protection would feel wildlife habitat would be adequately protected under this alternative.

Compared to Alternative A, more land could be burned during wildland fires because fires would be allowed to burn to natural barriers (if the fire is not a threat to life, property or resource values). Most local residents want wildland fires to be fought aggressively using all available methods, rather than allowing more land to burn.

The social effects to ranchers from livestock grazing management would be the same as Alternative B.

Alternative E

Wildlife habitat would be enhanced. The groups and individuals who give a high priority to resource protection

would feel wildlife habitat would be adequately protected under this alternative. However, individuals and groups who would give a high priority to resource use may feel too much protection is given to wildlife habitat.

Wildland fire would be fought least aggressively under this alternative. Fire could become large and at times disruptive to recreation activities in the Monument. The potential social effects from wildland fires could include smoke (causing eye, throat or lung irritation), loss of property and reduced recreation potential (BLM 2003e). Most local residents want wildland fires to be fought aggressively using all available methods.

Some ranch operations may find it difficult to adjust to some of the management proposed under this alternative. This includes restricting some water facilities which could limit the use of forage, strict limits on fencing specifications which would lead to higher livestock management costs, limits to accommodate wildlife during specific grazing seasons on some allotments, and limitations on travel which could make management of livestock and range improvements more difficult. In addition, resource reserve allotments would not be available to give the livestock operations more flexibility.

Alternative F (Preferred Alternative)

Wildlife habitat would be enhanced under this alternative. The groups and individuals who would give a high priority to resource protection would feel wildlife habitat would be adequately protected under this alternative.

The social effects of wildland fire suppression and prescribed fire would be the same as Alternative D.

The social effects to ranchers from livestock grazing management would be the same as Alternative B.

Impacts to Social from Visitor Use, Services and Infrastructure

Alternative A (Current Management)

This alternative is responsive to the desires of groups and individuals who feel Monument management should continue as it has in the past, and would enhance their social wellbeing. Recreationists who desire a primitive experience and those who give a high priority to resource preservation would not feel current and potential problems would be addressed under this alternative. This could cause a decline in their social wellbeing.

Future research and collection activities would remain most similar to current management. Activities allowed would include archeological and paleontological investigation

and research, collection of invertebrate fossils and petrified wood in specific areas, use of a metal detector with a permit, wildcrafting, and horn hunting. There would be no Christmas tree, post and poles, firewood or log cutting for personal use, and SRPs would be required for all special activities. A large number of unrestricted activities would be allowed under this alternative. However, the removal or collecting of specimens (horn, petrified wood, archeological artifacts) and continuation of other unrestricted activities may reduce the opportunities for other land users as the demands for these and other activities increase in the future and options for dealing with the increase in demand are not available. Declines in the quality of recreation and the social wellbeing of recreationists could occur if new issues could not be addressed.

River recreation would be a continuation of current management. Many choices would remain available for river users including: being allowed to camp at sites for up to 14 days, not having to use camp stoves, fire pans or fire mats, no restrictions on group size up to 50, fees at the James Kipp Recreation Area, and a seasonal downstream travel restriction at no-wake speed on the wild and scenic segments of the river. Current issues such as the effects of large groups on the experience of other users, the effects of potential increases in visitors in the future, and crowding at the most popular campsites would not be addressed. In addition, signing could detract from the visual quality and primitive setting of the UMNWSR. This alternative would not address many of the concerns identified during scoping such as keeping the river experience primitive and concerns about noise. Some recreationists feel very strongly that there should be time on the Missouri River when motorized watercraft are prohibited. This desire would not be met under this alternative.

Upland recreation would be a continuation of current management. Many choices would remain available for upland recreation users including: having access to 98% of the BLM roads at some time during the year, no restrictions with on-road game retrieval because most roads would be open, and (except in WSAs) off-road access for hunters to retrieve tagged animals with non-motorized, non-mechanized game carts. Acquiring more access could enhance recreational opportunities. Dispersed camping with no requirement for camp stoves, fire pans or fire mats would be allowed but camping opportunities would be limited to those sites accessible by foot from a designated road. No fees would be charged for camping. Recreation development in the uplands could occur if a partnership were developed through local service organizations. A full range of signs and kiosks could be developed and the primitive nature of the uplands may be visually compromised in some places. This alternative would not be versatile enough to address increases in demand that may occur with future increases in use, and recreation quality could decline in the future if problems could not be addressed.

Opportunities to retrieve game by motorized vehicle would be the most liberal under this alternative and may provide needed opportunities for an older population.

Livestock permittees would continue to access their allotments as they have in the past.

In the uplands, SRPs for commercial motorized tours and commercial hunting would be unlimited. Growth in commercial motorized tours could lead to increased traffic levels and concern from recreationists desiring a more primitive experience. The SRPs for outfitted hunting would be assigned to specific areas which could decrease potential conflicts between commercial and general public hunters.

Under this alternative, the BLM would encourage, but not participate in the development of staffed sites in gateway communities to provide visitor information and would not receive the benefit these partnerships could create.

Alternative B

This alternative is responsive to and would enhance the social wellbeing of rural communities and those who give a high priority to resource use. Recreationists seeking a primitive experience and those who give a high priority to resource preservation would not feel current and potential problems would be addressed under this alternative. This could cause a decline in their social wellbeing.

Future management for research and collection activities would be slightly less restrictive than under Alternative A. Activities allowed would include archeological and paleontological investigation and research, collection of invertebrate fossils and petrified wood, use of a metal detector in some areas without a permit, wildcrafting, horn hunting, and Christmas tree, post and pole, firewood and log cutting for personal use. SRPs would be required for all special activities. This alternative would allow, however, the largest number of unrestricted activities. The removal or collecting of specimens (horn, petrified wood, archeological artifacts) and other unrestricted activities may reduce opportunities for other land users as the demands for these activities and other activities increase in the future and options for dealing with the increase in demand are not available. Declines in the quality of recreation and the social wellbeing of recreationists could occur if new issues could not be addressed.

River recreation would be less restricted than under Alternative A and recreationists using motorboats and personal watercraft, and landing floatplanes would have unrestricted use of the Missouri River during all seasons. Many choices would remain available for river users including: being allowed to camp at sites for up to 14 days; unrestricted

camping on islands on the Missouri; not having to use camp stoves, fire pans or fire mats; lack of restrictions on any group size; and no camp fees. SRPs for river trips would be unlimited. Current issues such as the effects of large groups on the experience of other users, the effects of potential increases in visitors in the future, and crowding at the most popular campsites could be addressed by providing more sites and launch/take-out facilities, but this could affect the primitive nature of the visitor experience. In addition, signing could be erected anywhere along the river for any purpose and could detract from the visual quality and primitive setting of the UMNWSR. This alternative would not address many of the concerns identified during scoping such as keeping the river experience primitive and concerns about noise. Some recreationists feel very strongly that there should be time on the Missouri River when motorized watercraft are prohibited. This desire would not be met under this alternative.

Under this alternative, upland recreationists would have reduced opportunities for on-road game retrieval as compared to Alternative A; hunters (except in WSAs) would have off-road access to tagged animals with non-motorized, non-mechanized game carts; and hunters would have access to some identified closed roads during early morning and late evening hours for game retrieval. Additional opportunities for mountain bikers may occur on closed roads. Acquiring more access could enhance recreational opportunities. Dispersed camping with no requirement for camp stoves, fire pans or fire mats would be allowed and campers may access campsites up to 300 feet from roads. No fees would be charged for camping. Level 1, 2 and 3 sites could be constructed in the uplands. A full range of signs and kiosks could be developed and the primitive nature of the uplands may be visually compromised in some places. In the uplands, SRPs for commercial motorized tours and the number of vehicles would be unlimited; however, vehicles associated with the permit would be restricted to mostly local and collector roads. There would be no limit to the number of SRPs for commercial hunting with permits assigned to the entire Monument.

Overall, in the uplands, the effect of this alternative would increase opportunities for bighorn sheep wildlife watching, semi-primitive motorized activities, mountain biking, and walk in-hunting opportunities. However, conflicts may increase between commercial hunters and general public hunters and the ability to retrieve game during the morning and evening hours may disrupt other hunters.

Opportunities to retrieve game by motorized vehicle would be less than under Alternative A, but would still provide a variety of opportunities for an older population.

Livestock permittees would continue to access their allotments as they have in the past.

The BLM could develop staffed sites or strive to partner with gateway communities in Big Sandy, Chinook and Winifred to provide visitor information. This could enhance relationships between the recreationists and residents, and provide tourist-related economic opportunities for local residents.

Alternative C

This alternative is less responsive than Alternatives A or B to the desires of individuals and groups who want Monument management to continue as it has in the past and emphasize resource use. It is more responsive than Alternatives A or B to others who desire a primitive experience and those who feel Monument management should emphasize resource protection. However, some people may feel this alternative does not go far enough to lay the groundwork to be able to address problems that arise in the future.

Future research and collection activities would be slightly more restricted than with Alternative A. Activities allowed would include archeological and paleontological investigation and research, collection of invertebrate fossils and petrified wood in specific areas, use of a metal detector in some areas without a permit, wildcrafting in specific areas, horn hunting at specific times, and Christmas tree, post and pole, firewood and log cutting for personal use. SRPs would be required for all special activities. Most activities would be allowed, but may be restricted to specific areas or seasons, which would lay the groundwork to address issues that emerge in the future.

River recreation would generally be more restrictive than under Alternative A. The restrictions would include a 2-night limit at Level 2 sites during the core use period; at Level 4 opportunities camp stoves, fire pans or fire mats would be required; restrictions on groups of 20 or more to the historically slower days during the core use period; camp fees would be charged at all Level 1 sites, use of personal watercraft and landing floatplanes would be allowed on river miles 0 to 3; and downstream travel at no-wake speed would be allowed on the wild and scenic segments of the river during the core use period. In addition, standards and indicators would be used to manage visitor use and impacts to resources. If standards and indicators are exceeded, remedies would be taken without limiting the number of people boating the river. Additional campgrounds could be developed to accommodate increases in use. Signs would be carefully managed to ensure the visual quality and primitive setting of the UMNWSR would not be diminished. Current issues such as the effects of large groups on the experience of other users, the effects of potential increases in visitors, and crowding at the most popular campsites would be addressed, to some extent, under this alternative. This alternative would address some of the concerns identified during scoping such as keeping the river experience primitive and concerns about noise,

although some would be disappointed that there would be no time when motorized boats are prohibited on the river.

Upland recreationists would have reduced opportunities for on-road game retrieval as compared to Alternatives A and B, hunters would have off-road access to tagged animals with non-motorized, non-mechanized game carts (except in the WSAs), and access to some identified closed roads during mid-day for game retrieval. Additional opportunities for mountain bikers may occur on closed roads. Acquiring more access could enhance recreational opportunities. At Level 4 opportunities camp stoves, fire pans or fire mats would be required. Campers may access campsites up to 150 feet from roads. Level 1 sites could be constructed only at the beginning of public access roads into the Monument. Level 2 sites would be park and explore sites where people could walk from designated parking areas and Level 3 sites would be pull-out sites adjacent to the road. SRPs for commercial motorized tours and the number of vehicles would be unlimited but vehicles associated with the permit would be restricted to local and collector roads. The number of SRPs for commercial hunting would be limited to the current number, but each permit would be assigned to the entire Monument. The primitive nature of the uplands may be compromised by signing.

Overall, in the uplands, this alternative would increase opportunities for bighorn sheep wildlife watching, semi-primitive motorized activities, mountain biking and walk-in hunting opportunities. Although the number of SRPs for commercial hunting would be limited to current numbers, the unlimited numbers of guides could lead to increased conflicts in areas favored by the general public.

Opportunities to retrieve big game would be less than provided by Alternatives A and B, but would still provide a variety of opportunities for an older population.

Livestock permittees would be allowed to travel upstream to administer a grazing permit with prior notification to the BLM or verbal authorization from the BLM in unplanned situations. Driving on closed roads and off road to administer their permit would continue for permittees as it has in the past.

The BLM would strive to develop staffed sites or partner with the gateway communities of Big Sandy, Chinook and Winifred to provide visitor information. This could enhance relationships between the recreationists and residents, and provide tourist-related economic opportunities for local residents.

Alternative D

Recreationists who desire a primitive experience and those who give a high priority to resource preservation would feel current and potential problems are addressed under this

alternative. Individuals and groups who want Monument management to continue as it has in the past and emphasize resource use would feel it is less responsive than Alternatives A, B or C, even though the social and economic analyses predict little effect to local landowners and communities.

Future research and collection activities would be similar to Alternative C, except forest product collection would be limited to Christmas trees and firewood. Most activities would be allowed, but may be restricted to specific areas or seasons. SRPs would be required for special events and these events would be allowed on a case-by-case basis.

River recreation would generally be more restrictive than under Alternative C. The restrictions would include a 2-night limit at Level 2 sites during the core use period, camping disallowed seasonally on islands, Level 4 opportunities camp stoves, fire pans or fire mats would be required, groups larger than 30 would require an SRP to boat the river, fees would be charged at existing Level 1 sites, and no new Level 1 sites would be developed. Use of personal watercraft and landing of floatplanes would be allowed on river miles 0 to 3, and downstream travel at no-wake speed would be allowed on the wild and scenic segments of the river during the core use period. In addition, standards and indicators would be used to manage visitor use and impacts to resources. If standards or indicators are exceeded, remedies would be taken which could limit the number of people boating the river. Signs would be carefully managed to ensure the visual quality and primitive setting of the UMNWSR would not be diminished. Current issues such as the effects of large groups on the experience of other users, the effects of potential increases in visitors, and crowding at the most popular campsites would be addressed under this alternative. This alternative would also address the concerns identified during scoping such as keeping the river experience primitive and concerns about noise.

Upland recreationists would have reduced opportunities for on-road game retrieval as compared to Alternative C; off-road access to tagged animals with non-motorized, non-mechanized game carts (except in WSAs); and hunters would have access to some identified closed roads during mid-day for game retrieval. There would be no attempt to acquire more access. At Level 4 opportunities camp stoves, fire pans or fire mats would be required. Campers may access campsites up to 10 feet from a road. Level 1 sites would not be allowed. Level 2 sites would only be developed on main artery roads. Level 3 sites would be pull-out sites adjacent to the road. Signs would be commensurate with visual surroundings and the level of development. SRPs for commercial motorized tours would be restricted to two vehicles per operator per day and SRPs for commercial hunting would be issued in areas with limited public access.

Overall in the uplands, the effect of this alternative would be to increase opportunities for a primitive experience including bighorn sheep wildlife watching, semi-primitive motorized activities, and walk-in hunting opportunities.

Opportunities to retrieve big game would be less than provided by Alternatives A, B, and C, but would still provide a variety of opportunities for an older population. The BLM could designate specific closed roads for use by individuals with disabilities, based on demand or on a case-by-case basis.

Livestock permittees would be allowed to travel upstream to administer a grazing permit with prior notification to the BLM or verbal authorization from the BLM in unplanned situations. Driving on closed roads and off road to administer their permit would be allowed seasonally.

The BLM would strive to develop staffed sites or partner with the gateway communities of Big Sandy, Chinook and Winifred to provide visitor information. This could enhance relationships between the recreationists and residents, and provide tourist-related economic opportunities for local residents.

Alternative E

Activities on the Monument would be more restricted than under any other alternative. Recreationists who desire a primitive experience and those who give a high priority to resource preservation would feel current and potential problems are addressed under this alternative. However, they may agree this alternative restricts activities too severely. This is the least responsive alternative to individuals and groups who feel Monument management should continue as it has in the past and should emphasize resource use.

No research, collection or large group activities would be allowed. Many of the activities that visitors current enjoy, such as horn hunting, metal detecting, collecting invertebrate fossils, firewood collecting, etc. would not be allowed. Most visitors would feel activities would be too restricted under this alternative.

River recreation would be more restrictive than under any other alternative. No motorized watercraft would be allowed on the Missouri River. Other restrictions would include a 2-night limit at Level 2 and 3 sites during the core use period, at Level 4 opportunities camp stoves, fire pans or fire mats would be required, groups of more than 16 would have to obtain a SRP, fees would be charged at all Level 1 sites and for boating the river, camping on islands would be prohibited, the number of user days for guided trips would be limited, and no additional campgrounds would be constructed. The development and implementation of an allocation system, which could limit the numbers

of visitors, would be initiated upon completion of the RMP. Signs would be limited to Level 1 sites and would fit in with the visual surroundings and level of development. Current issues such as the effects of large groups on the experience of other users, the effects of potential increases in visitors in the future, and crowding at the most popular campsites would be addressed under this alternative. This alternative would also address concerns about noise and keeping the experience primitive, but some visitors would consider the remedies under this alternative to be too extreme.

Upland recreationists would have access to only 16% of current BLM road miles. This would result in reduced opportunities for on-road game retrieval as compared to Alternative C, reduced opportunities to access state and private lands for hunters and other visitors compared Alternative A, and use of non-motorized/non-mechanized game carts for hunters to access tagged animals would be restricted to closed roads. There would be no attempt to acquire more access. Commercial guided tours would not be allowed but SRPs for outfitted hunting would be unlimited. At Level 4 opportunities camp stoves, fire pans and fire mats would be required. Campers could not pull off designated routes for camping. Level 1, 2 and 3 sites would not be allowed. Signs would be commensurate with visual surroundings and the level of development. This alternative would maintain the primitive nature of the Monument interior and would create primarily primitive non-motorized opportunities. Some visitors would consider the restrictions in this alternative to be too extreme.

Big game retrieval would be more restricted than in all other alternatives with no access to closed roads and no off road game cart use which would minimize the opportunities available for the older population. The BLM could designate specific closed roads for use by individuals with disabilities, based on demand or on a case-by-case basis.

Livestock permittees would be able to drive on closed roads and off road to administer their permit on a case-by-case basis. They would be allowed to travel upstream to administer a grazing permit with prior notification to the BLM or verbal authorization from the BLM in unplanned situations.

The BLM would not develop staffed sites for visitor information or strive to partner with the gateway communities of Big Sandy, Chinook and Winifred, but would provide visitor information to the local communities. This could preclude enhancing the relationships between local communities and recreationists.

Alternative F (Preferred Alternative)

Recreationists who desire a primitive experience and those who give a high priority to resource preservation would feel current and potential problems are addressed under this alternative. Individuals and groups who feel Monument

management should continue as it has in the past, and should emphasize resource use, would feel it is less responsive than Alternatives A, B, or C even though the social and economic analyses predict little effect to local landowners and communities under this alternative.

The following research and collection activities would be allowed: archeological and paleontological investigation and research; collection of invertebrate fossils and petrified wood in specific areas; use of a metal detector by permit only; wildcrafting; horn hunting with imposition of a seasonal restriction if wildlife harassment becomes a problem; and Christmas tree and firewood collection for personal use. SRPs would be required for large events and these events could be disallowed on a case-by-case basis. Most activities would be allowed, but some may be restricted to specific areas or seasons. This alternative would provide options to use if problems develop in the future.

River recreation under this alternative would be similar to Alternative D. The restrictions would include a 2-night limit at Level 2 sites during the core use period; at Level 4 opportunities camp stoves, fire pans or fire mats would be required; groups of more than 30 would have to obtain a SRP; groups of more than 20 could launch at Coal Banks Landing and Judith Landing only on Wednesday, Thursday or Friday during the core use period; fees would be charged at all Level 1 sites and for boating the river; camping on islands on the Missouri River would be prohibited seasonally; and additional Level 1 sites would be constructed only in the recreation segment of the UMNWSR. Use of personal watercraft and landing of floatplanes would only be allowed on river miles 0 to 3; downstream motorized travel at no-wake speed would be allowed on river miles 52 to 84.5 during the core use period; and motorized watercraft would be prohibited on river miles 92.5 to 149 during the core use period. In addition, standards and indicators would be used to manage visitor use and impacts to resources. If standards or indicators were exceeded, remedies would be taken without limiting the number of people boating the river. Signs would be carefully managed to ensure the visual quality and primitive setting of the UMNWSR is not diminished. Current issues such as the effects of large groups on the experience of other users, the effects of potential increases in visitors, and crowding at the most popular campsites would be addressed under this alternative. This alternative would also address concerns about noise and keeping the experience primitive that were identified during scoping by prohibiting motorized watercraft on river miles 92.5 to 149 during the core season.

Upland recreationists would have reduced opportunities for on-road game retrieval as compared to Alternative C; off-road access to tagged animals with non-motorized, non-mechanized game carts (except in WSAs); and hunters would have access to some identified closed roads during mid-day for game retrieval. Acquiring additional access

could enhance recreational opportunities. At Level 4 opportunities camp stoves, fire pans or fire mats would be required. Campers may access campsites up to 300 feet from a road. Level 1 sites would only be constructed at the beginning of public access roads into the Monument. Level 2 sites would be park and explore sites. Level 3 sites would be pull-out sites adjacent to the road. Signs would be commensurate with visual surroundings and the level of development. SRPs for commercial motorized tours would be restricted to two vehicles per operator and SRPs for commercial hunting would be limited to the current number.

Overall, in the uplands, this alternative would increase opportunities for a primitive experience including bighorn sheep wildlife watching, semi-primitive motorized activities, and walk-in hunting opportunities.

Opportunities to retrieve big game would be less than under Alternatives A, B, and C, but would still provide a variety of opportunities for an older population. If the need arises, the BLM could identify specific designated closed roads as access for individuals with disabilities.

Livestock permittees would be allowed to travel upstream to administer a grazing permit with prior notification to the BLM or verbal authorization from the BLM in unplanned situations. Driving on closed roads and off-road to administer their permit could continue as it has in the past for permittees.

The BLM would strive to develop staffed sites or partner with the gateway communities of Big Sandy, Chinook and Winifred to provide visitor information. This could enhance relationships between the recreationists and residents, and provide tourist-related economic opportunities for local residents.

Impacts to Social from Natural Gas Exploration and Development

Alternative A (Current Management)

The natural gas resource would be managed most similarly to the State Director's Interim Guidance. Many people, particularly those living in the local area, would prefer the management to remain unchanged. However others, would be concerned that not enough protection was being given to wildlife and visual resources.

Alternative B

Under this alternative, slightly more gas could be produced than under Alternative A. Social effects would be similar to Alternative A.

Alternative C

Under this alternative, slightly less gas could be produced than under Alternative A. Social effects would be similar to Alternative A.

Alternative D

Nearly 50% less gas could be produced than under Alternative B. Although no significant study area economic effects are predicted, people who give priority to resource use would feel natural gas management would be too restrictive. Those who give a high priority to resource protection would prefer this alternative to A, B, and C, but still may have wildlife concerns.

Alternative E

Nearly 66% less gas could be produced than under Alternative B. Although no significant study area economic effects are predicted, people who give priority to resource use would feel natural gas management would be too restrictive. Those who give a high priority to resource protection may prefer this alternative to A, B, C and D.

Alternative F (Preferred Alternative)

Under this alternative, production would be similar to Alternative A. More protection would be in place for wildlife and visual resources, but not as much as for Alternative E.

Impacts to Social from Access and Transportation

Alternative A (Current Management)

Access and transportation management would remain the same. The public would retain their options to travel on all existing BLM roads within the Monument. Some people have indicated this is important to them. However, others feel current resource problems are not being addressed in this alternative.

Alternative B

Slightly more roads would be closed than under Alternative A. These roads would be closed to address resource concerns. Some people would feel these road closures would be important to protect wildlife. Others who use these roads for activities other than lease maintenance, would lose the option to use some roads they previously had available to them. However, other than Alternative A, this alternative closes the fewest roads and miles.

Some closed roads could be designated for mechanized use such as mountain bikes; the BLM would attempt to acquire access where no legal public access exists; motorized or mechanized vehicles would be allowed to pull off 300 feet to camp; and game retrieval would be allowed on some identified closed roads. The latter two provisions would provide more opportunities for the aging public. However, there is concern that it would be difficult to enforce these activities and that some people would use them as an excuse to drive on closed roads.

All 10 existing airstrips would remain open and additional airstrips could be allowed after environmental review. People who use these airstrips would feel their options maintained and/or enhanced.

Alternative C

Under this alternative, slightly more roads would be closed than under Alternative B. These roads would be closed to address resource concerns. Effects would be similar to Alternative B.

Some closed roads could be designated for mechanized use such as mountain bikes; the BLM would attempt to acquire access where no legal public access exists; motorized or mechanized vehicles would be allowed to pull off 150 feet (outside wilderness study areas) to camp; and game retrieval would be allowed from 10 a.m. to 2 p.m. on some designated roads and for three hours after the legal hunting time. The latter two provisions would provide more opportunities for the aging public. However, there is concern that it would be difficult to enforce these activities and that some people would use them as an excuse to drive on closed roads.

Seven of the 10 existing airstrips would remain open, but they could be seasonally restricted. People who use these airstrips may feel the loss of some options they previously enjoyed

Alternative D

About half of the BLM road mileage would be available yearlong. Roads would be closed to address resource concerns. Some roads commonly used for dispersed recreation would remain open. Some people would feel these road closures would be important to protect wildlife. Others who use these roads for activities other than lease maintenance, would lose the option to use some roads they previously had available to them. Some people have indicated that the ability to use these roads is very important to them.

No additional access to BLM lands would be acquired. Some closed roads could be limited to specific motorized and/or mechanized use, off-road camping would be al-

lowed up to 10 feet off the road, and the BLM could designate specific closed roads for use by individuals with disabilities, based on demand or on a case-by-case basis. Access for recreationists could be substantially limited under this alternative.

Six of the 10 existing backcountry airstrips could remain open; but only two would be open yearlong. People who use these airstrips may feel the loss of many options they previously enjoyed.

Alternative E

Less than 1/5 of the BLM road mileage would be available yearlong. This is the most restrictive alternative in terms of what would be allowed, and some people would feel their options to be severely limited.

No additional access to BLM lands would be acquired and no off-road camping would be allowed. Some recreationists and hunters could have their activities severely restricted. Some roads could be limited to specific motorized and/or mechanized use. The BLM could designate specific closed roads for use by individuals with disabilities, based on demand or on a case-by-case basis.

No backcountry airstrips would remain open and those who use these airstrips would have all their options eliminated in this area.

Alternative F (Preferred Alternative)

About 1/3 of the BLM road mileage would be available yearlong. Roads would be closed to address resource concerns. Some roads commonly used for dispersed recreation would remain open. Some people would feel these road closures would be important to protect wildlife. Others who use these roads for activities other than lease maintenance, would lose the option to use some roads they previously had available to them.

Some closed roads could be designated for mechanized use such as mountain bikes; the BLM would attempt to acquire access where no legal public access exists; motorized or mechanized vehicles would be allowed to pull off 300 feet (outside wilderness study areas) to camp; and game retrieval would be allowed from 10 a.m. to 2 p.m. on some designated roads. The latter two provisions would provide more opportunities for the aging public. However, there is concern that it would be difficult to enforce these activities and that some people would use them as an excuse to drive on closed roads. In addition, if the need arises, the BLM could identify specific designated closed roads as access for individuals with disabilities.

Effects to backcountry airstrip users would be the same as Alternative D.

Summary of Cumulative Impacts to Social

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Alternatives A, B, and parts of C are most responsive to the desires of individuals and groups who feel Monument management should continue as it has in the past. They address the concerns of those who want to maintain roaded access, and those who would give a high priority to resource use, and could enhance the social wellbeing of all these groups and individuals. Opportunities for motorized recreation predominate under these alternatives. Game retrieval by motorized vehicle would be the most liberal, which could provide options as the population ages. Livestock permittees would continue to access their allotments as they have in the past and resource reserve allotments could allow added management flexibility. Individuals and groups who desire a primitive, quiet recreation experience would not feel these opportunities are available. They may also feel these alternatives do not offer the ability to address current or future problems. Social wellbeing for these groups and individuals may decline under these alternatives.

Alternatives D and F (Preferred Alternative) are less responsive to the desires of individuals who feel public land management should continue as it has in the past, those who want more roaded access and those who would give a high priority to resource use. The social wellbeing of the above groups and individuals could decline under these alternatives. Most activities would be allowed under these alternatives, but may be restricted to specific areas or seasons. These alternatives would lay the groundwork to address current and future issues as they emerge. Opportunities to retrieve game by motorized vehicles would be less numerous than under Alternatives A, B, and C, but would still provide some opportunities for hunters as the population ages. Livestock permittees would continue to access their allotments with minimal restrictions and resource reserve allotments could allow added management flexibility. Opportunities for motorized recreation would decline relative to Alternatives A, B and C, and opportunities for primitive, quiet experiences would be enhanced. Individuals and groups who would give a high priority to resource protection would feel this is accomplished under these alternatives, which could enhance their social wellbeing. Recreationists who prefer primitive experiences would appreciate the motorized watercraft prohibition on miles 95.2 to 149 during the core season; other recreationists may feel this prohibition is too restrictive.

Under Alternative E, activities in the Monument would be more restricted than under any other alternative. This alternative is least responsive to the desires of individuals who feel Monument management should continue as it has in the past, those who want more roaded access and those

who would give a high priority to resource use. The social wellbeing of the above groups and individuals could decline under these alternatives. Opportunities to retrieve game by motorized vehicle would be the most restricted of all the alternatives and would not provide opportunities for hunters as the population ages. Livestock permittees' access to their allotments would be somewhat limited and other restrictions would be imposed which could make management of livestock and range improvements more difficult. Individuals and groups who want a primitive, quiet experience, would feel these opportunities are available. However, they may also feel that the proposed restrictions under this alternative would be too extreme.

Under Alternative A, the BLM would encourage, but not participate in the development of staffed sites in gateway communities to provide visitor information and would not receive the benefit these partnerships could create. Under Alternatives B, C, D, and F, the BLM would strive to develop staffed sites or partner with gateway communities in Big Sandy, Chinook and Winifred to provide visitor information. This could enhance relationships between recreationists and residents, and provide tourist-related economic opportunities for local residents. These effects could, in turn, enhance social wellbeing for all affected parties. Under Alternative E, the BLM would not develop staffed sites for visitor information or strive to partner with the gateway communities of Big Sandy, Chinook and Winifred, but would provide visitor information to the local communities. This could preclude enhancing the relationships between local communities and recreationists.

Economics

Impacts to Economics

Introduction

A basic assumption in this analysis, with a few exceptions, is that the natural resources contained within the Monument would not be reallocated to different uses as a result of the management plan, and that the relationship between the Monument resources and the economy of the area would continue as it has in the past. The Proclamation establishing the Monument emphasizes the continuation of existing rights in a manner that does not create any new impacts that would interfere with the proper care and management of the objects protected by the Proclamation. The current condition and alternatives being considered do not reallocate resources (reallocate lands covered by grazing permits to other uses) but deal with changing management direction in a manner that responds to the goals and objectives set forth in the planning process.

Current levels and recent trends in employment, personal income, and population are described in Chapter 3. The alternatives focus on management direction and essentially maintain the status quo in the allocation of Monument resources. Thus, current direction and the alternatives provide essentially the same opportunities for economic growth, employment and unemployment, payments in lieu of taxes, gas road taxes and county property taxes. That is, the current direction and alternatives to it would not influence these economic factors.

During the period 1991 to 2000, employment in the study area grew by 8%. This was a significant increase over past trends for the area, but still below state and national trends. There are no forces apparent at this time that would indicate a change in this trend with respect to its relationship to state and national trends.

Inflation adjusted personal income in the study area declined by over 4% between 1991 and 2000, with the largest contributing factor being declines in farm income. Fluctuations in farm income tend to reflect changes in market prices and costs, factors that will not be influenced by current direction or the alternatives to it.

Payments in lieu of taxes are calculated by formulas which would not be affected by the management plan. None of the direction related to the transportation system would affect the miles of gas tax roads in the Monument. None of the direction would affect property values and the property tax base or change revenue to local entities.

Impacts to Economics Common to All Alternatives

As mentioned above, there are a few exceptions where alternatives may affect resource users. The users most likely to be affected are those using grazing, recreation, and natural gas. Also, there would be potential differences in BLM management costs associated with some alternative direction.

Ranching

In 2002, the Monument grazing allotments provided an estimated 37,000 AUMs. In 2002, there were 203,000 beef cows and heifers that had calved on ranches in the study area.¹ The forage provided by Monument grazing allotments represents about 1% of the nutritional needs for cattle in the study area. Changes in forage availability would not create a measurable effect on ranching in the study area, but some individuals with grazing allotments within the Monument may have to make minor adjustments in their operation in response to some of the direction in the alternatives.

¹ Montana Agricultural Statistics, 2002

Recreation and Tourism

In the uplands section of the Monument, the supply of recreational activities exceeds the current and near future demand for these opportunities. The changes in management direction in the alternatives would not materially affect this relationship. However, some changes in management direction for the wild and scenic river portion could affect river users, including outfitters and guides and recreationists. For example, the use of fire pans, limiting travel at certain times, etc. could result in inconveniences and/or very small changes in costs.

Natural Gas

The Proclamation states "The Secretary of the Interior shall manage development on existing oil and gas leases with in the Monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation." The potential for development of new wells in the Monument exists. The current direction and the direction in the alternatives differ in how this development could take place in terms of location and what constitutes proper care and management. There may be small costs to the leaseholder associated with restrictions in location and with modifying their management practices. The effect of these differences would fall on the leaseholder and would not likely create measurable effects in the study area economy. However, there may be some changes in the cost of development and operation for individual leaseholders as management direction changes.

Government Expenditures

The costs of managing the Monument may change under a new management plan. There are provisions in the alternatives that could increase costs associated with road maintenance, recreation administration, law enforcement, etc. These provisions would be funded through a budgeting and appropriations process. Predicting actual funding levels from this process is speculative.

Impacts to Economics from Health of the Land and Fire

Protection of sage-grouse habitat under Alternatives B through F may change grazing management practices compared to Alternative A. This could increase costs and/or reduce income to the permittee. These changes would be very small as there are few sage-grouse leks involved. Also, there could potentially be some increase in costs to the government to implement the various practices in the alternatives that are different from Alternative A.

Impacts to Economics from Visitor Use, Services, and Infrastructure

Under Alternative A, recreation in the Monument would be managed with four recreation management areas, under Alternatives B through F recreation would be managed under two recreation management areas. These two areas would consist of the Missouri River portion of the Monument and the uplands portion of the Monument. This would streamline both the planning and the management functions for the Monument and should result in a reduction in costs to the government. While the change in costs may not be large, once implemented they would be permanent.

Under Alternative B, no recreation user fees would be charged for overnight camping at developed recreation sites. In Alternative A, a fee of \$6 per vehicle would be charged for camping overnight at the James Kipp Recreation Area. An average of \$15,000 per year is collected under Alternative A. This revenue would be permanently lost under Alternative B. Alternative C would be no different than Alternative A. For Alternatives D through F, effects on revenues cannot be determined at this time.

Special recreation use permits for commercial recreation activities on the Missouri River would be limited to 23 under Alternatives A and F and to 30 permits under Alternatives C and D. Alternative B would not limit permits, and essentially allows businesses to seek a permit based on market conditions for outfitted trips on the river. From an economic efficiency perspective, restricting entry into a market tends to reduce the efficiency of the market. Thus Alternatives A and C through F would reduce market efficiency.

The special recreation permits for commercial hunting in the uplands also have alternatives that limit the number of permits that could be issued and some alternatives restrict the areas where the permit is valid. Alternatives A, B, D and E would not limit the number of permits that could be issued, while Alternatives C and F would limit the number that can be issued to the current number of outfitters with permits. Alternatives B and C would have no restrictions on

where the permit is valid. Alternatives A, D, and E would assign a specific geographic area or areas to each permit, while Alternative F would assign areas based on existing use areas/leases.

As discussed above, limiting the number of permits issued restricts market entry and reduces economic efficiency. Assigning specific areas to specific permits is a further market restriction in that it limits the area in which outfitters can offer their services. In this case Alternative B would be the least restrictive in terms of economic efficiency, and Alternatives A, C, D, and E would be less restrictive than Alternative F, which would be the most restrictive.

Impacts to Economics from Natural Gas Exploration and Development

The reasonable foreseeable natural gas wells associated with the alternatives would have different effects on output, employment and labor income in the regional economy. Producing natural gas wells do not have either uniform production rates over time nor do they have equal producing lives over time. To facilitate the comparison of alternatives, gas production was converted to an average annual basis.

Alternative A reflects what would happen if current management were followed into the future. The foreseeable natural gas wells associated with Alternative A would support \$5.7 million dollars in average annual output, 36 jobs, and over \$1.1 million dollars in labor income. It should be noted that over \$4 million of the output is the value of the natural gas produced, and most of this \$4 million would be exported from the area and little, if any, retained in the area. The amounts supported would be equal to about 0.4% of the total output and 0.2% of employment and labor income in the regional economy.

Alternatives B, C, D, and E would follow different levels of foreseeable natural gas wells. Alternative F would be similar to Alternative A. The different economic effects created by these natural gas wells when compared to Alternative A are shown in Table 4.36.

Table 4.36 The Change in Output, Employment, and Labor Income in the Regional Economy for Alternatives B, C, D, E, and F (Preferred Alternative), 2000					
	Alt. B	Alt. C	Alt. D	Alt. E	Alt. F
Change in Output (million \$)	+\$1.4	-\$0.7	-\$2.1	-\$3.5	-\$0.09
Change in Employment (jobs)	+9	-4	-14	-22	-1
Change in Labor Income (million \$)	+\$0.19	-\$0.12	-\$0.39	-\$0.65	-\$0.02
Change in Royalties (thousand \$)	+\$91	-\$58	-\$191	-\$316	-\$8
Change in Disbursements (thousand \$)	+\$46	-\$29	-\$96	\$158	-\$4

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA; RFD Projections; and Minerals Management Service data.

Alternative B would support more output, employment, and labor income in the regional economy than Alternative A. Alternatives C, D, and E would support less output, employment, and labor income in the regional economy than Alternative A. Alternative F is almost identical to Alternative A in its economic effects. As discussed above, these amounts represent only a very small fraction of output, employment and labor income in the regional economy. The royalties to the federal government and disbursements to the state are average annual values for the life of the well.

Summary of Cumulative Impacts to Economics

Alternatives A (Current Management), B, C, D, E, and F (Preferred Alternative)

Changes in forage availability would not create a measurable effect on ranching in the study area, but some individuals with grazing allotments within the Monument may have to make minor adjustments in their operation in response to some of the direction in the alternatives.

In the uplands section of the Monument, the supply of recreational activities exceeds the current and near future demand for these opportunities. The changes in management direction in the alternatives would not materially affect this relationship. However, some changes in management direction for the wild and scenic river portion could affect river users, including outfitters and guides and recreationists.

Natural gas operations would affect output, employment, and labor income in the regional economy but the change only represents a very small fraction of the economy as discussed under natural gas exploration and development.

Unavoidable Adverse Impacts

Soils

Areas that are not successfully reclaimed from surface-disturbing activities, could have excessive soil erosion, which would be considered adverse when soil productivity is affected and sedimentation occurs to the extent that water quality is degraded. Unauthorized activities, such as off-road travel, could lead to soil compaction and a subsequent increase in surface runoff and soil erosion.

Vegetation – Native Plants

There would be minimal impacts to vegetation that cannot be avoided with appropriate mitigation measures as included within the alternatives.

Short-Term Use versus Long-Term Productivity

Soils

Most surface-disturbing activities result in short-term localized soil impacts, except for areas of continual use (i.e. roads, recreational areas, natural gas production areas) that require a long-term commitment of soil resources. Soil impacts include soil erosion, sedimentation and site instability. After reclamation and revegetation, long-term soil productivity, stability and site production would return.

Vegetation – Native Plants

Some short-term uses (roads, gas development facilities, and recreation activities) would influence vegetation on a localized basis; however, the long-term vegetation productivity does not differ from one alternative to the other.

Livestock Grazing

There could be some short-term losses in forage available for livestock grazing and inconvenience to accommodate other activities (recreation, gas development, prescription burning, wildlife habitat, etc). These losses would be relatively small and with mitigation measures, in the long-term, are likely to sustain or increase productivity.

Irreversible and Irretrievable Commitment of Resources

Soils

If mitigating measures are ineffective in controlling erosion, there would be an irreversible and irretrievable commitment of the soil resource. Excessive soil erosion resulting in sediment entering surface waters would be an irreversible and irretrievable impact.

CHAPTER 5

CONSULTATION AND COORDINATION

Introduction

This chapter describes the public participation opportunities made available through the development of this Draft Resource Management Plan and Environmental Impact Statement (RMP/EIS). This chapter also describes the consultation that occurred and collaborative efforts with the State of Montana; Blaine, Chouteau, Fergus and Phillips Counties; and the U.S. Fish and Wildlife Service. A distribution list identifies the governmental agencies, congressional staff, businesses and organizations that received a copy of the Draft RMP/EIS.

The Draft RMP/EIS was prepared by an interdisciplinary team of resource specialists, identified at the end of this chapter, from the Lewistown Field Office, Great Falls Oil and Gas Field Station, Havre Field Station, Malta Field Office, and the Montana State Office. The economic analysis was provided through a contract with Northwest Economic Associates. Technical review and support were provided by field office and state office staffs in Montana.

The State of Montana and Blaine, Chouteau, Fergus, and Phillips Counties participated in development of the Draft RMP/EIS as cooperating agencies. The Central Montana Resource Advisory Council also participated, and a discussion of their involvement is included later in this chapter.

Members of the planning team have consulted formally and informally with numerous agencies, groups and individuals during the preparation of this document. Consultation, coordination, and public involvement occurred as a result of scoping and alternative development meetings, briefings and meetings with federal, state, tribal, and local government representatives, informal meetings and individual contacts.

Public Participation Opportunities

The major public participation events, scoping and alternative development are described below. Table 5.1 located at the end of this section contains a list of public involvement opportunities which occurred as the Draft RMP/EIS was developed.

Scoping

The scoping process identifies land use issues, conflicts, and opportunities. These issues may stem from new information or changed circumstances, the need to address environmental protection concerns, or a need to reassess the appropriate mix of allowable uses based on new information.

Scoping is the first stage of the planning process and closely involves the public with identifying issues, providing resource and other information, and developing planning criteria to guide preparation of the document.

A Notice of Intent to prepare the Draft RMP/EIS for the Upper Missouri River Breaks National Monument (Monument) was published in the Federal Register on April 24, 2002. This notice served as the beginning of BLM's formal scoping process.

The notice was followed by news releases in April and June, updates to the public (mailing list) in May and June, a newsletter in June, and a newspaper-type handout in July. All of these tools conveyed information about the planning process, scoping open houses, potential issues, and questions/answers about the Monument.

To provide ample opportunities for public participation across northcentral Montana, the BLM hosted 11 scoping open houses in July and August 2002. Over 320 people attended the open houses in:

July 8	Winifred	July 17	Cleveland
July 9	Lewistown	July 18	Malta
July 10	Big Sandy	July 22	Hays
July 11	Fort Benton	August 5	Great Falls
July 15	Havre	August 6	Billings
July 16	Chinook		

The BLM received 5,700 scoping comments, of which 5,300 were submitted electronically. Ten identified form letters or organized campaign form letters resulted in 5,100 of the total scoping comments. Scoping comments came from all 50 states, Puerto Rico, five Canadian provinces, and several foreign countries.

All scoping comments were read and 1,766 specific comments were coded into 31 subject categories and 55 subcategories. These categories are guidance-based resource sections for an RMP (Washington Office IB No. 2002-056), and the subcategories are based on the comments

received. Most of the coded comment letters contained several specific comments covering various categories. All 1,766 specific comments were entered into a database and organized by category and subcategory in a 123-page comment summary. The Scoping Comment Summary is available by contacting the Lewistown Field Office.

Alternative Development Workshops

In July 2003, as part of a continuing effort to invite public participation in planning for the Monument, a newsletter was available that included the Overall Vision and Management Goals for the Monument and a request for public comments on the Vision and Goals and ideas for the alternatives. The BLM also held 11 alternative development workshops during July in the same communities where the scoping open houses were held the previous year:

July 14	Winifred	July 23	Cleveland
July 15	Lewistown	July 24	Malta
July 16	Big Sandy	July 28	Hays
July 17	Fort Benton	July 29	Great Falls
July 21	Havre	July 30	Billings
July 22	Chinook		

About 350 people attended these alternative development workshops, and by year end, the public provided 7,167 comments, including seven identified form letters or organized campaign forms (6,237 letters/emails).

All comments were read and 2,647 specific comments were identified and coded into 64 subject categories and subcategories. The Alternative Development Comment Summary is available by contacting the Lewistown Field Office.

Scoping and Alternative Development for the 12 West HiLine Oil and Gas Leases

The Draft RMP/EIS includes an analysis of 12 existing natural gas leases in the Monument. The analysis of these leases is part of the comprehensive plan for the Monument.

The BLM's decision to examine these leases is the result of a Montana Federal District Court ruling involving a suit that alleged the agency did not fully comply with the National Environmental Policy Act, the Endangered Species Act, and the National Historic Preservation Act when 3 of the 12 leases were awarded in 1999. The 3 leases involved in the suit were based on analysis in the West HiLine RMP. The ruling ordered the BLM to prepare an environmental impact statement for the oil and gas leasing program that covers the 3 leases. An additional 9 leases in the Monument

are also based on the West HiLine RMP, and the BLM felt it would be most efficient to analyze all 12 of the leases in this RMP/EIS.

The first step in the oil and gas lease analysis was scoping this new issue with the public, which began with a news release and update to the mailing list (email/regular) in September 2004 to explain the issue. This was followed in October with news releases and a newsletter to the mailing list which included information about the natural gas leasing issue, frequently asked questions/answers, and a request for public comment on the development of alternatives for inclusion in the RMP/EIS.

To provide opportunities for public participation, the BLM held six public meetings in November 2004:

November 8	Winifred
November 9	Lewistown
November 10	Great Falls
November 15	Chinook
November 16	Fort Belknap
November 17	Billings

The format of the public meetings was informational, and the public visited with BLM resource specialists at four stations and participated in question/answer sessions. The intent was to provide enough information about the leases for the public to provide written comments on the development of alternatives. About 60 people attended these public meetings.

Since the public meetings were informational, questions and concerns were not formally recorded by the BLM; however, a comment form was provided and the public was encouraged to submit written comments at the conclusion of the meeting or by December 15, 2004.

A total of 5,700 letters, emails, and comment forms were received on this issue, of which 5,571 were a variation of two form letters/emails. Like the previous scoping and alternative development public comment processes, some letters/emails were as brief as a few sentences; others were several pages long. Some offered specific comments on alternatives, while others conveyed a want or an opinion. They all expressed an interest in the management of BLM land in the Monument.

All public comments on the oil and gas leasing issue were read and 449 specific comments were identified and coded into 30 subject categories. The Oil and Gas Leases Scoping Report is available by contacting the Lewistown Field Office.

Table 5.1
Public Involvement Opportunities

<i>Date</i>	<i>Opportunity</i>
February 2002	Gateway Communities Workshop, Lewistown
March 2002	Update sent to mailing list
April 2002	Notice of Intent published in the Federal Register
April 2002	News release issued
May 2002	Update sent to mailing list
June 2002	Update sent to mailing list
June 2002	Newsletter to mailing list
June and August 2002	Invitation sent to state, local and tribal governments to partner as cooperating agencies
July and August 2002	Public scoping meetings held in 11 communities
July 2002	Briefings with Blaine, Chouteau, Fergus and Phillips County Commissioners on the planning process
August 2002	Update sent to mailing list
November 2002	Update sent to mailing list
December 2002	Community Based Partnership Workshop held in Lewistown
January 2003	Newsletter sent to mailing list
February 2003	Economic Profile Workshop held in Lewistown
June 2003	News release issued; update and newsletter sent to mailing list
July 2003	Alternative development workshops held in 11 communities
February 2004	Update sent to mailing list
June 2004	Update sent to mailing list
September 2004	News release issued; update sent to mailing list
October 2004	Two news releases issued; newsletter sent to mailing list
November 2004	Oil and gas leasing public meetings in six communities
March 2005	Update sent to mailing list

Consultation and Coordination

Tribal Consultation

In accordance with the National Historic Preservation Act and in recognition of the government-to-government relationship between tribes and the federal government, letters were sent to tribal governments and officials at the start of the planning process to inform them of the upcoming Monument RMP and an opportunity to partner with the BLM as a cooperating agency. While no tribes became an official cooperating agency, coordination has continued through letters, updates, and meetings which are listed below. The opportunity for additional meetings will occur with the Draft RMP/EIS.

March 2004	Fort Belknap Community Council
April 2004	Confederated Salish and Kootenai Tribes of the Flathead Nation
May 2004	Blackfeet Tribal Council
June 2004	White Clay Society
June 2004	Chippewa-Cree Cultural Advisory Committee
July 2004	Blackfeet Tribal Council

U.S. Fish and Wildlife Service Consultation

Federal agencies are required to comply with provisions of the Endangered Species Act of 1973, as amended. This includes a requirement to consult with the U.S. Fish and Wildlife Service (USFWS) on any action that may affect species listed as threatened and endangered or result in

destruction or adverse modification of habitat designated as critical for listed species. In addition, federal agencies must confer with the USFWS on any action that is likely to jeopardize the continued existence of any species proposed to be listed or any action that may result in the destruction or adverse modification of critical habitat proposed to be designated for listed species.

Contacts were made with the USFWS early in the planning process, and early drafts of alternatives were provided for discussion. An initial list of federally listed threatened or endangered plant, animals, or fish species or habitats present in the planning area was requested on December 2, 2003, with an update received on June 3, 2005. Three federally listed threatened wildlife species and two endangered species either occur in the Monument or use habitat found within the Monument. These include pallid sturgeon (endangered), bald eagle (threatened), black-footed ferret (endangered/experimental non-essential), Canada lynx (threatened), and piping plover (threatened). Informal meetings were held with the USFWS to discuss issues and alternatives and the USFWS participated during interdisciplinary team meetings. A draft biological assessment evaluating the impacts of the preferred alternative on federal threatened and endangered species will be submitted to the USFWS concurrently with the public release of this document. The proposed RMP and final EIS will include the final biological assessment and resulting USFWS biological opinion. Consultation with the USFWS will continue throughout the RMP process.

Central Montana Resource Advisory Council

In 1999, the Central Montana Resource Advisory Council (RAC) established the Upper Missouri River RAC Subgroup to analyze the recreational activities on the Upper Missouri National Wild and Scenic River (UMNWSR) and to make recommendations to the RAC concerning future management opportunities for the river. Over the course of 3 1/2 years, the subgroup worked with the BLM and the University of Montana to generate high quality information concerning visitor expectations, resource conditions, and the potential to align recreation use with the objectives of landowners, residents, and businesses in the area. In January and March 2002, the subgroup presented a series of recommendations concerning a variety of people management issues on the UMNWSR, and many of the recommendations were approved by the RAC (RAC 2002a, 2002b). The subgroup translated its prior work into ideas that could be incorporated in the RMP and presented their recommendations in a May 2003 report to the RAC (RAC 2003).

The RAC continued to be involved in the preparation of the RMP/EIS. RAC members attended the scoping open houses

in July and August 2002, to listen to the public discussions with resource specialists concerning issues related to managing the Monument. In July 2003, the RAC assisted the BLM by facilitating a public discussion on management opportunities during a series of alternative development workshops. The RAC appointed members to attend and participate in the monthly interdisciplinary team meetings. In February, April, June, September, and December 2004, the RAC reviewed the preliminary alternative for the Draft RMP/EIS and provided recommendations to the BLM. Their participation will continue during the review of the Draft RMP/EIS.

Cooperating Agencies

In the summer of 2002, the BLM invited state, local and tribal governments to partner in a cooperating agency relationship for developing the RMP/EIS. The State of Montana and Blaine, Chouteau, Fergus and Phillips Counties are cooperating agencies in all phases of its preparation, with BLM acting as the lead agency.

The State of Montana is a cooperating agency in this planning process, guided by a February 2003 memorandum of understanding. The State of Montana has been represented on the interdisciplinary planning team through a representative designated by the Governor.

Blaine, Chouteau, Fergus, and Phillips Counties are cooperating agencies in this planning process, guided by memorandums of understanding established in November 2002. Fergus and Blaine Counties have been represented on the interdisciplinary planning team while Chouteau and Phillips County have relied on Fergus County for their involvement on the planning team.

Plan Distribution

Since initial scoping, the BLM has maintained a mailing list (regular and email) of individuals, businesses, organizations, and federal, state, tribal, and local government representatives interested in development of the Monument RMP. In an effort to reduce printing and mailing costs, notices were sent to individuals, businesses, and organizations on the mailing list in July 2005, requesting confirmation of their preference to remain on or to be deleted from the mailing list, along with options for viewing the Draft RMP/EIS.

The Draft RMP/EIS is available on the BLM web site at http://www.blm.gov/nhp/spotlight/state_info/planning.htm and is available for public review at the following locations: Montana State Office (Billings, Montana), Great Falls Oil and Gas Field Station (Great Falls, Montana), and Lewistown Field Office (Lewistown, Montana).

Printed copies of the document have been distributed to the government agencies, business, and organizations listed below. The Draft RMP/EIS, either on CD or in printed format, was also mailed to individuals who requested a copy.

Federal Government

Nez Perce Nat'l Historic Trail/Bear Paw Battlefield
US Army Corps of Engineers - Omaha District
US Dept Energy - Office of Environmental Mgmt
US Dept of Justice
US Environmental Protection Agency
US Fish and Wildlife Service
US Geological Survey
USDA Farm Service Agency
USDA Forest Service
USDA Natural Resources Conservation Service
USDI Bureau of Indian Affairs
USDI Bureau of Land Management
USDI Bureau of Reclamation
USDI CMR National Wildlife Refuge
USDI Field Solicitor's Office
USDI National Park Service

State Government

Colorado State Forest Service
Idaho Public Utilities Commission
Montana Aeronautics Division
Montana Bureau of Mines and Geology
Montana Dept Environmental Quality
Montana Dept Nat Resources & Conservation
Montana Dept of Transportation
Montana Environmental Quality Council
Montana Fish Wildlife & Parks
Montana Governor Brian Schweitzer
Montana Office of Indian Affairs
Montana Office of the Lieutenant Governor
Montana Public Service Commission
Montana State Historic Preservation Office
Montana Travel Montana
North Dakota Public Service Commission
Wyoming Public Service Commission

County/Local Government

Blaine County Commission
Blaine County Conservation District
Blaine County Extension Service
Blaine County Library
Blaine County Sheriff
Cascade County Conservation District
Chouteau County Commission
Chouteau County Conservation District
Chouteau County Extension Service
Chouteau County Planner

Chouteau County Sheriff
City of Chinook Mayor
City of Fort Benton
City of Havre Mayor
City of Malta Mayor
Fergus County Commission
Fergus County Extension Service
Fergus County Planner
Fergus County Sheriff
Havre Public Library
Hill County Commission
Lewistown City Manager
Lewistown City Planner
Lewistown Public Library
Petroleum County Commission
Phillips County Commission
Phillips County Extension Office
Phillips County Library
Phillips County Sheriff
Phillips County Supt of Schools
Valley County Commission
Winifred Public Schools
Winifred Rural Fire Dept

Tribal Government

Blackfeet Cultural Program
Blackfeet Planning & Development
Blackfeet Tribal Council
Buffalo Chasers Society
Chippewa-Cree Business Committee
Chippewa-Cree Cultural Committee
Chippewa-Cree Tribal Council
Chippewa-Cree Tribal Office
Confederated Salish & Kootenai Tribes
Crow Tribal Council
Crow Tribal Cultural Affairs Dept
Fort Belknap Environmental Protection Office
Fort Belknap Indian Community Council
Fort Belknap Tribal Planning Department
Fort Hall Reservation
Fort Peck Tribal Water Office
Fort Peck Tribes
Little Shell Tribe of Chippewa Indians of MT
Northern Cheyenne Cultural Committee
Northern Cheyenne Tribe
Rocky Boy's Natural Resources Department
Three Affiliated Tribes of Fort Berthold Reservation
Turtle Mountain Band of Chippewa Indians
White Clay Society
Wind River Reservation

Congressional

Congressman Denny Rehberg
Senator Max Baucus
Senator Conrad Burns

Businesses

3 Rivers Canoes
5B OG Company Inc
ABN Ranch
Adventure Bound Canoe & Shuttle Company
Anchor Ranch
Arco Oil & Gas Company
Armells Creek Outfitting
Arnaud Outfitting
Aspen Youth Alternatives
Bailey Land and Livestock
Baker OG Development LLC
Ballard & Associates Inc
Bar OK Ranch - Fairfield Textiles
Barnard Brothers
Barnard Energy LLC
Bear Paw Development Corp
Bear Paw Energy Inc
Bear Paw Mountain Outfitters
Big Flat Electric Cooperative Inc
Billings Rod & Gun Club
Black Hawk Resources
Black Ranch Inc
Blazek Brothers Inc
Blue Ribbon Flies
Borderline Outfitters
Britt Minerals Inc
Brown and Darlington
Canoe Montana/Montana River Expeditions
Casino Creek Concrete
Chase Hill Outfitters
Choctaw II OG LTD
Coppedge Ranch Inc
Cow Creek Outfitters
Dale & Shirley Robertson Shuttles
Derks Bros Grain & Cattle Inc
Devon Louisiana Corp
Dickinson Ranch
E-7 Grain & Livestock
Eagle Butte Farm Inc
Eightmile Bench Farm
Elenburg Exploration Inc
Encana Energy Resources Inc
Encore Operating
Ensign Operating Company
Entranco Inc
Eric H Nelson Attorney at Law
Evers Ranch Corporation
Explorations Inc
Express Pipeline Partnership
Faber Ranch Inc
Faith Drilling Inc
Faunawest Wildlife Consultants
Fergus Electric Cooperative Inc
Fidelity Exploration & Production Company
First Trust Co of Montana

Florentine Films
Gasvoda and Sons
Gasvoda Bros Livestock
Glacier Sea Kayaking
Good Ridge Resources Inc
Gough Shanahan Johnson & Waterman
Graig Intl Inc
Great Northern Boot Co
Hamilton Res Management
Hancock Enterprises
Havre Answering Service
Havre Pipeline Company
Hawk I'm Your Sister
Heggem Ranch
Helena Orthopedic Clinic
Hicks & Sons Inc
Hill County Electric Cooperative Inc
IEF 3 & 4 Even Corp
Inside Energy
Integrated Planning Services
IX Ranch Co
J B Brown Operating Co
J Sugar Company Inc
Jireh Consulting Services
Joe Klabzuba Partnership
John's Shuttle Service
Johnson Ranch
Joy Global Inc
Judith River Farm
Kaiser Francis Oil
Kilroy Company of Texas Inc
Kinney Consulting Services LLC
Klabzuba Oil & Gas Inc
L S Adventures
Laneer Res LTD
Lanning Family Trust
LBR Ranch Inc
Leave No Trace Inc
Lewis & Clark Canoe Expeditions
Lewis & Clark Trail Adventures
Lewistown News-Argus
Little Rockies Outfitting
Lost Creek Outfitting
M & E Outfitters
Macmillan Judith River Ranch
Macum Energy Inc
Magic Cir Energy Corp
Main Energy Inc
Marks Oil Inc
Matador Ranch
McLaughlin Insurance Services
McNamara Family LTD Partnership
MDU Resources Group Inc
Mid-Rivers Telephone Coop Inc
Milk River Outfitters
Missouri Breaks River Company
Missouri River Canoe Co

Mitchell Ranch
 Montana Breaks Outfitting
 Montana Guide Service
 Montana Hunt and Fish Inc
 Montana Oil Journal
 Montana Prairie Adventures
 Montana Ranchers Hunts
 Montana River Outfitters
 Montana Wilderness Outfitters
 Morgan Expl LLC
 Morrison-Maierle
 N Hanging 5 Ranch
 Natural Gas Week
 Nevada Power Company
 Nichols Oil Company
 North Wind Environmental
 Northern Rockies Outfitter
 Ocean Energy Resources Inc
 Orr Family Trust
 Our Montana Inc
 P Brian Rogers MD Inc PS
 Paul Mirski and Associates
 Permits West Inc
 Peterson Ranch & Feed Lot
 PIC Technologies Inc
 Pinwheel J Ranch
 Pioneer Lodge
 Pitot OG LLC
 PN Ranch
 Portage Environmental
 Practiceworks Inc
 Prairie Kraft Specialties
 Public Lands Access Assn Inc
 Public Lands News
 Range Watershed Restor Foresters
 Redbone Outfitters
 Redrock Drilling
 River Odysseys West
 Sand Creek Ranch
 Sandtana Inc
 Saroc Inc
 Sawtooth Oil Company
 Schneider G OG LLC
 Smiling Gulch Ranch
 Starwest Adventures
 Swca Environmental Consultants
 Tetra Tech Inc
 Texaco
 Textana USA
 Timco Investments Inc
 T-K Production Company
 Toklan OG Corporation
 Triangle Telephone Cooperative
 Two Calf Company
 Ugrin Alexander Zadick & Higgins PC
 Unit Petroleum Company
 Upper Missouri River Guides

Upper Missouri River Keelboat Co
 Virgelle Valley Ranch Inc
 Virgelle Ventures
 Western Star Realty Inc
 Whiskey Ridge Lodge Inc
 Whiskey Ridge Outfitters
 White Cliff Tours
 Wickens Outfitting
 Wild Rockies Tours
 Wilderness Inquiry
 Williston Basin Interstate Pipeline
 Wolf Spirit Expeditions
 Wood River Ranch

Organizations

Acoustic Ecology Institute
 Aircraft Owners and Pilots Association
 Alliance for the Wild Rockies
 American Assn State Geologists
 American Bird Conservancy
 American Birding Association
 American Farm Bureau
 American Fisheries Society
 American Forest and Paper Association
 American Hiking Association
 American Horse Protection Association
 American Motorcyclist Assoc
 American Petroleum Institute
 American Recreation Coalition
 American Rivers
 American Sheep Industry Association
 American Sportfishing Association
 American Trails
 American Wildlands
 American Wind Energy Association
 Association for the Preserv of American Wild-Lands
 Audubon Society
 Backcountry Horsemen
 Beartooth Fat Tire Society
 Big Sandy Conservation District
 Bikenet
 Blue Ribbon Coalition
 Bolle Center for People & Forests
 Boone and Crockett Club
 Bowhunting Preservation Alliance
 Brazos Valley MTB Assoc
 Capital Trail Bike Riders
 Capital Trail Vehicle Association
 Cascade County 4-Wheelers
 Center for Biological Diversity
 Central Montana Resource Advisory Council
 Central Montana Trail Users
 Central Montana Wildlands Association
 Colorado River Basin Salinity Control Forum
 Comm for Access to Public Lands/Handicapped
 Congressional Sportsmen's Foundation

Defenders of Wildlife
 Ducks Unlimited
 Earth Justice Legal Defense Fund
 Ecosystems Alert (HOTA)
 Edison Electric Institute
 Flathead Wildlife Inc
 Forest Policy Center
 Fort Benton Chamber of Commerce
 Fort Benton Economic Dev Comm
 Foundation for North American Wild Sheep
 Friends of the Missouri Breaks Monument
 Gallatin Wildlife Association
 Garden Club of America
 Geothermal Energy Association
 Geothermal Resource Council
 Great Divide Cycling Team
 Great Falls Chamber of Commerce
 Great Northern Outdoor Club
 Greater Yellowstone Coalition
 Havre Chamber of Commerce
 Havre Rifle and Pistol Club
 Helena Bicycle Club
 Howard County Bird Club
 Humane Society of the United States
 Hunters Anglers Assn
 Independent Petroleum Assn of Mtn States
 Indian Butte Cooperative State Grazing District
 International Assn of Fish and Wildlife Agencies
 International Mountain Bicycling Association
 Interstate Mining Compact Commission
 Interstate Natural Gas Association of America
 Izaak Walton League
 Last Chance Audubon Society
 Lewistown Chamber of Commerce
 Low Impact Mtn Bicyclists of Missoula
 Magic City 4-Wheelers
 Malta Chamber of Commerce
 Malta Trap Club
 Medicine River Canoe Club
 Mineral Policy Center
 Missouri River Cons Dist Council
 Missouri River Stewards
 Montana 4 X 4 Association
 Montana Agricultural Center & Museum
 Montana Agriculture Development Council
 Montana Association of Counties
 Montana Audubon
 Montana Big Open Inc
 Montana Board of Oil and Gas Conservation
 Montana Bowhunters Assn
 Montana Chamber of Commerce
 Montana Chapter the Wildlife Society
 Montana Ecosystems Defense Council
 Montana Environmental Information Center
 Montana Farm Bureau
 Montana Farmers Union
 Montana Geological Society

Montana Horseshoe Outfitters
 Montana Native Plant Society- Clark Fk Chptr
 Montana Night Riders
 Montana Outfitters & Guides Assn
 Montana Petroleum Association
 Montana Pilots Association
 Montana River Action Network
 Montana Seaplane Pilots Association
 Montana Trail Vehicle Riders Assn
 Montana Trails Association
 Montana Trappers Association
 Montana Trout Unlimited
 Montana Wilderness Association
 Montana Wildlife Federation
 Montana Woolgrowers Assn
 Montanans for Multiple Use
 Mountain States Legal Foundation
 Mule Deer Foundation
 National Assn of Conservation Districts
 National Association of Counties
 National Audubon Society
 National Cattlemen's Beef Assn
 National Conf State Hist Preservation Officers
 National Fish and Wildlife Foundation
 National Mining Association
 National OHV Conservation Council
 National Parks Conservation Assn
 National Rifle Assn of America
 National Shooting Sports Foundation
 National Trust for Historic Preservation
 National Wild Turkey Federation
 National Wildlife Federation
 Natural Resource Defense Council
 Nature Conservancy
 North American Grouse Partnership
 North Blaine Co Cooperative State Grazing District
 Northern Montana Oil & Gas Assn
 Northern Plains Resource Council
 Northwest Mining Association
 Orion the Hunters Institute
 Our Montana Inc
 Outdoor Industry Association
 Peregrine Fund
 Pheasants Forever
 Phillco Economic Growth Council
 Plains Crazy Road & Trail Club
 Political Economy Research Center
 Pope and Young Club
 Predator Conservation Alliance
 Private Lands/Public Wildlife Council
 Public Employees for Env Responsibility
 Public Interest Research Group
 Public Lands Access Assn
 Public Lands Council and Grazing Districts
 Public Lands Foundation
 Quail Unlimited
 Rails to Trails

- Recreational Boating and Fishing Foundation
Republicans for Environmental Protection
River and Plains Society
Rocky Mountain Elk Foundation
Rocky Mountain Mineral Law Foundation
Ruffed Grouse Society
Russell Country Sportsmen’s Association
Sci - First for Hunters
Sierra Club
Skytruth
Snowy Mountain Development Corp
Society for American Archaeology
Society for Range Management
Society of American Foresters
Square Butte Grazing Association
St Joseph’s Church
Surgical Associates of Spartanburg, PA.
Swan View Coalition
The Ecology Center
The Wilderness Society

Theodore Roosevelt Conservation Partnership
Tread Lightly Inc
Trout Unlimited - Westslope Chapter
Upper Missouri Trust
Walleyes Unlimited of Montana
Western Electricity Coordinating Council
Western Governors’ Association
Western States Land Commissioners Assn
Western Utility Group
Wild Canid Research Group
Wild Rockies Field Institute
Wilderness Watch
Wildlands CPR
Wildlife Habitat Enhancement Council
Wildlife Management Institute
Wildlife Society
Yellowstone River Parks Assoc
Yellowstone Valley Audubon
Yellowstone Valley Cycling Club

List of Preparers

Core Team

Wade Brown	
Education	B.S. Wildland Recreation Management
Professional Discipline	Supervisory Outdoor Recreation Planner
Years of Experience	15
Responsibility	Visitor Uses, Services and Infrastructure
Shannon Downey	
Education	M.S. Forest Ecology
Professional Discipline	Fire Mitigation and Education Specialist
Years of Experience	24
Responsibility	Fire
Craig Flentie	
Education	B.S. Technical Journalism/Mass Communication
Professional Discipline	Public Affairs Specialist
Years of Experience	28
Responsibility	Public Involvement
Alan Fox	
Education	Ph.D. Economics
Professional Discipline	Natural Resource Economics
Years of Experience	40
Responsibility	Economics
Joe Frazier	
Education	M.S. Biology, M.S. Hydrology
Professional Discipline	Hydrologist, Riparian
Years of Experience	30
Responsibility	Watershed, Riparian

Lou Hagener	
Education	B.S. Range Science
Professional Discipline	Rangeland Management/Ecosystem Management
Years of Experience	28
Responsibility	Vegetation/Rangeland Management/Grazing
Kay Haight	
Education	High School Graduate
Professional Discipline	Secretary
Years of Experience	27
Responsibility	Administrative Assistant
Mitch Iverson	
Education	B.S. Range Management
Professional Discipline	Rangeland Management
Years of Experience	12
Responsibility	Rangeland Management/Grazing
Stanley Jaynes	
Education	M.A. Anthropology
Professional Discipline	Archeologist
Years of Experience	25
Responsibility	Cultural Resources
Kenny Keever	
Education	B.S. Plant Protection
Professional Discipline	Invasive Species
Years of Experience	5
Responsibility	Vegetation – Noxious and Invasive Plants
Dennis Lingohr	
Education	B.S. Range Management
Professional Discipline	Range Management Specialist
Years of Experience	29
Responsibility	Rangeland Management
Jerry Majerus	
Education	B.S. Forestry, M.S. Forestry
Professional Discipline	Land Use Specialist
Years of Experience	22
Responsibility	Project Manager
Dale Manchester	
Education	B.S. Petroleum Engineering
Professional Discipline	Petroleum Engineer
Years of Experience	22
Responsibility	Natural Gas and Reasonable Foreseeable Development
Joanne Maycox	
Education	A.A. Theatrical Arts
Professional Discipline	Forestry Technician/Data Administrator
Years of Experience	25
Responsibility	Database Management
Craig Miller	
Education	B.A. Wildlife
Professional Discipline	Wildlife Biologist
Years of Experience	6
Responsibility	Wildlife, Fisheries, Threatened and Endangered Species

Jim Mitchell	
Education	B.A. Geology
Professional Discipline	Geologist
Years of Experience	27
Responsibility	Geology and Paleo
Loretta Park	
Education	High School Graduate
Professional Discipline	Realty Specialist
Years of Experience	22
Responsibility	Lands and Realty
Jody Peters	
Education	B.S. Wildlife & Fisheries Science, Range Science Minor
Professional Discipline	Wildlife Biologist (Management)
Years of Experience	16 (Wildlife), 2 (Range Management)
Responsibility	Wildlife, Fisheries, Threatened and Endangered Species
Bruce Reid	
Education	B.S. Forestry
Professional Discipline	Forester
Years of Experience	20
Responsibility	Forestry
Rod Sanders	
Education	B.S. Wildlands Recreation Management
Professional Discipline	Outdoor Recreation Planner
Years of Experience	14
Responsibility	Wilderness Study Areas and Upland SRPs
Gary Smith	
Education	M.A. Anthropology
Professional Discipline	Archeologist
Years of Experience	20
Responsibility	Cultural Resources
Josh Sorlie	
Education	B.S. Soils
Professional Discipline	Soil Scientist
Years of Experience	2
Responsibility	Soils
Joan Trent	
Education	B.A. Psychology, M.En. Environmental Science
Professional Discipline	Sociologist
Years of Experience	27
Responsibility	Social Conditions
Clark Whitehead	
Education	B.S. Forest Management
Professional Discipline	Outdoor Recreation Planner
Years of Experience	38
Responsibility	Access and Transportation

Interdisciplinary Team and Support

Engineering	Carl Patten
Engineering	Ken Koncilya
Fire	Steve Knox
Fish and Wildlife	Fred Roberts
Fish and Wildlife	Fritz Prellwitz
GIS	Kaylene Patten
GIS	Daniel Frank
GIS	Gary Warfield
GIS	Betty Westburg
Planning Coordination	Jim Beaver
Printing	Kathy Ives
Rangeland Management	Vinita Shea
Recreation	Jon Collins
Website	JoLyn Goss

Management Team

State Director	Marty Ott
Associate State Director	Jerry Meredith
Field Manager, Lewistown	June Bailey
Field Manager, Lewistown (retired)	Dave Mari
Associate Field Manager, Lewistown	Mike Stewart
Assistant Field Manager, Fire	Gary Kirpach
Assistant Field Manager, Fire (retired)	Mitch Maycox
Assistant Field Manager, Resources	Willy Frank
Assistant Field Manager, Malta	Rich Adams
Monument Manager	Gary Slagel

BIBLIOGRAPHY

- Aderhold, M. 1996. Montana's endangered species – a status report. Montana outdoors March/April 1996. Helena, Montana.
- Allen, E.O. 1968. Range use, foods, condition, and productivity of white-tailed deer in Montana. Journal of Wildlife Management 32(1):130-141.
- Aune, K. 1991. Increasing mountain lion populations and human-mountain lion interactions in Montana. Pages 86-94 in C.L. Braun, ed. Mountain Lion-Human Interaction Symposium. Colorado Division of Wildlife, Denver. 114pp.
- Balison, Stefani. 2002. Fire history and regeneration patterns of *Pinus ponderosa* in the Missouri River Breaks. Unpublished report on file at Central Fire Zone, Bureau of Land Management, Lewistown, MT.
- Baxter, G. and J. Simon. 1970. Wyoming fishers. Bulletin Number 4, Wyoming Game and Fish Department. Cheyenne.
- Beier, P. 1995. Dispersal of juvenile cougars in fragmented habitat. Journal of Wildlife Management. 59:228-237.
- Bekoff, M. 1982. Coyote. Pages 447-459 in J.A. Chapman and G.A. Felkhamer, editors. Wild Mammals of North America, Biology, Management and Economics. John Hopkins University Press, Baltimore, USA and London, England.
- Bengston, D., George Xu and David Fan. Attitudes toward ecosystem management in the United States, 1992-1998. Society and Natural Resources. 14 471-487.
- Berg, R. K. 1981. Fish Populations of the Wild and Scenic Missouri River, Montana. Montana Fish Wildlife and Parks. Helena. 242 p.
- Bleich, V.C., J.D. Wehausen, and S.A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology. 4:383-390.
- Bowen, W.D. 1982. Home range and spatial organization of coyotes in Jasper National Park, Alberta. Journal of Wildlife Management. 46:201-216.
- Brown, C. 1976. Fishes of Montana. Big Sky Books, Montana State University. Bozeman.
- Buechner, H.K. 1960. The bighorn sheep in the United States, its past, present and future. Wildlife Monographs 4:174.
- Burchfield, Jim and R. Neil Moisey. 2000. Characteristics of the Upper Missouri National Wild and Scenic River: Pathways to Sustain A Common Heritage. School of Forestry, The University of Montana. Missoula.
- Calhoun, Fred, H.H. 1906. The Montana Lobe of the Keewatin Ice Sheet. U.S. Geological Survey Professional Paper No. 59.
- Carey, C. 1993. Hypothesis concerning the causes of the disappearance of boreal toads from the mountains of Colorado. Cons. Biol. 7:355-362.
- Carlson, D.M., W.L. Pflieger, L. Trial, and P.S. Haverland. 1985. Distribution, biology, and hybridization of *Scaphirhynchus albus* and *S. platyrhynchus* in the Missouri and Mississippi Rivers. Environmental Biology of Fishes 14(1): 51-59.
- Central Montana Resource Advisory Council (RAC). 1999a. Meeting Minutes for August 10, 1999.
- Central Montana Resource Advisory Council (RAC). 1999b. Meeting Minutes for October 28-29, 1999.
- Central Montana Resource Advisory Council (RAC). 1999c. Meeting Minutes for November 16 and 17, 1999.
- Central Montana Resource Advisory Council (RAC). 1999d. Report to the Secretary on the Upper Missouri River and Breaks Area. December.
- Central Montana Resource Advisory Council (RAC). 2002a. Meeting Minutes for January 29-30, 2002.
- Central Montana Resource Advisory Council (RAC). 2002b. Meeting Minutes for March 8, 2002).
- Central Montana Resource Advisory Council (RAC), Upper Missouri River RAC Subgroup. 2003. Report to the Central Montana RAC.
- Chinook, Montana Comprehensive Plan Elements. 1979. Chinook-Blaine County Comprehensive Plan.
- Chouteau County Growth Policy Plan. 1994.
- City of Fort Benton, 2002 Needs Assessment Survey Final Report.

- Cole, G.F. 1956. The pronghorn antelope—Its range use and food habits in central Montana with special reference to wheat. Montana fish and Game Department, Montana Agriculture Experiment Station, Technical Bulletin No. 516:1-63.
- Congressional Research Service, 2003. Agriculture: A Glossary of Terms, Programs, and Laws—B, downloaded from the website of the Committee for the National Institute for the Environment, <http://216.239.57.104/search?q-cache:iOlrZJQkE2cJ+www.cnire.org/nle/AgGlossary/letter-b.html+%22B>.
- Conte, F.S., S.I. Doroshov, P.B. Lutes, and E.M. Strange. 1988. Hatchery manual for the white sturgeon with applications to the North American Acipenseridae. Publication 3322, University of California, Davis. 104pp.
- Cordell, et al. 1999. Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends. Champaign, Illinois, Saagamore Publications.
- Cross, F. 1967. Handbook of fishes of Kansas. Museum of Natural History, University of Kansas. Lawrence, Kansas.
- Dillion, Thale, "Employment and Wages: The Travel Industry in Montana," University Travel Research Program, University of Montana, Technical Report 2000-1, July 2000.
- Dinsmore, S.J. 2000. Mountain Plover, pages 213-218. In R.P. Reading and B. Miller [eds.], Endangered animals: a reference guide to conflicting issues. Greenwood Press, Westport, CT.
- Dinsmore, S.J. 2001. Dissertation. Population biology of mountain plovers in southern Phillips County, Montana. Colorado State University. Fort Collins, Colorado. 99pp.
- Dunn, W.C. 1996. Evaluation bighorn habitat: A landscape approach. Technical note 395. New Mexico Dept. Game and Fish. 41 pp.
- Dwights/Powertools Oil and Gas Datatbase. October 2002.
- Eichhorn, L.C., C.R. Watts. 1972. Bighorns in the breaks. Montana Outdoors. 3(3)32-34.
- Eigell, Robert. 1987. *Cows, Cowboys, Cannerymen, and Corned Beef and Cabbage*. Vantage Press Inc., New York.
- Elser A. et al. 1977. The effect of altered streamflow on fish of the Yellowstone and Tongue Rivers, Montana. Technical Report No. 8, Yellowstone Impact Study, for the old west Regional Commission. Helena.
- Elser, A. et al. 1980. Distribution of fishes in southeastern Montana. Report submitted to the Bureau of Land Management. Miles City.
- Erdman, C.E., and Lemke, R.W. 1963. Geology and Mineral Resources of Missouri River Valley between Head of Fort Peck Reservoir and Morony Dam, Appendix III of U.S. Army Corps of Engineers, Department of Interior and U. S. Bureau of Reclamation. Joint report on water and related land resources development of Missouri River Fort Peck Reservoir to Vicinity of Fort Benton, Montana: Government Printing Office, Washington D.C.
- Federal Register. 1994. Changes in hydric soils of the United States. Washington, DC (current Hydric Soil definition).
- Federal Register: Volume 65, No. 86, 2000, Restriction of Public Lands.
- Federal Register Online, www.wais.access.gpo.gov, November 23, 2003.
- Fergus County. 1987. Heartland Montana Economic Development Plan: 1987-1992 for Lewistown/Fergus County.
- Fergus County Land Use Policy. 1992. Adopted August 17.
- Gardner W.M. 1995. Northcentral Montana Fisheries Study, Missouri River pallid sturgeon inventory. Mont. Fish Wildlife and Parks. Helena. Fed. Aid to Fish and Wildlife Rest. Proj. F-46-R-8. Study No. III, Job D. 13pp.
- Gardner W.M. 2002. Fisheries biologist, Montana Fish, Wildlife & Parks. Lewistown, MT. February 2002 telephone conversation.
- Gardner, W. M. and R. Berg. 1982. An analysis of the instream flow requirements for selected fishes in the wild and scenic portion of the Missouri River. Montana Fish Wildlife and Parks. Helena. 111pp.
- Geist, V. 1971. Mountain sheep, a study in behavior and evolution. Univ. Chicago Press. Chicago. 383 pp.
- Geraldine Historical Society. 1976. *Spokes, Spurs and Cackleburs*. Fort Benton, MT. River Press Publishing. 309 p.
- Gese, E.M., O.J. Rongstad, and W.R. Mytton. 1988a. Relationship between coyote group size and diet in

- southeastern Colorado. *Journal of Wildlife Management*. 52:647-653.
- Gese, E.M., O.J. Rongstad, and W.R. Mytton. 1988b. Home range and habitat use of coyotes in southeastern Colorado. *Journal of Wildlife Management*. 52:640-646.
- Gese, E.M., O.J. Rongstad, and W.R. Mytton. 1989. Population dynamics of coyotes in southeastern Colorado. *Journal of Wildlife Management*. 53:174-181.
- Giddings, B. 1995. Statewide furbearer program annual management and harvest report, 1993-1994, Montana. Montana Department of Fish, Wildlife and Parks, Helena. 51pp.
- Gilbraith, D.M., M.J. Schwalbach, and C.R. Berry. 1988. Preliminary report on the status of the pallid sturgeon, *Scaphirhynchus albus*, a candidate endangered species. Department of Wildlife and Fisheries Sciences, South Dakota State University, Brookings, South Dakota.
- Gould, W.R. 1981. First records of the rainbow smelt (*Osmeridae*), sicklefin chub (*Cyprinidae*) and white bass (*Percichthyidae*) from Montana. *Proc. Mont. Acad. Sci.* 40: 9-10.
- Gould, W.R. 1994. The recent distribution of sturgeon chub (*Macrhybopsis gelida*) in Montana. Report to the Montana Department of Fish, Wildlife and Parks. Helena.
- Gramann, J. 1999. The Effect of Mechanical Noise and Natural Sound on Visitor Experiences in Units of the National Park Service *Social Science Research Review*. Vol. 1 No. 1 Winter 1999.
- Grinnell, G.B. 1904. American big game in its haunts. New York: Forest and Stream Publishing Co. 497 pp.
- Grisak, G. G. 1996. The status and distribution of the sicklefin chub in the middle Missouri River, Montana. Masters thesis. Montana State University, Bozeman.
- Hamlin, K.L. 1997. Survival and home range fidelity of coyotes in Montana: implications for control. *Intermountain Journal of Science* 3(2/3):62-72.
- Hansen, Paul L. 1989. Inventory, Classification, and Management of Riparian Sites Along the Upper Missouri National Wild and Scenic River. Final Report to the Montana Riparian Association, School of Forestry, University of Montana. Missoula.
- Hearn Jr., B.C. 1979. Preliminary map of diatremes and alkalic ultramafic intrusions in the Missouri River Breaks and vicinity, north-central Montana: U.S. Geological Survey Open-File Report. 79-1182, scale 1:125,000.
- Hearn Jr., B.C. 1989. Alkalic ultramafic magmas in north-central Montana, USA: Genetic connections of alonite, kimberlite, and carbonatite, in *Kimberlites and Related Rocks - Volume 1: Their Composition, Occurrence, Origin, and Emplacement*, Geol. Soc. Australia, Spec. Publ. 14, pp. 109-119.
- Helms, D. 1974. Shovelnose sturgeon, *Scaphirhynchus platyrhynchus*, in the navigational impoundments of the upper Mississippi River. Tech. Series. Iowa State Conservation Commission 74-3. 68 pp.
- Holton, G.D. 1980. The riddle of existence; fishes of special concern. *Montana Outdoors* 11: 2-6.
- Holton, G.D., and H.E. Johnson. 1996. A field guide to Montana fishes (second edition). Montana Fish, Wildlife & Parks. Helena, Montana. 103 pp.
- Hunt, John. 1992. "Rural Tourism: Vital to the New Economy of the New West." Presented as the keynote address for "Transportation: The Vital Link in the New Economy," A Center of the New West Conference, Denver CO.
- Hunter, C. 1994. Species of special concern list, updated. *Montana Outdoors*. September/October. Helena.
- Hunter, Chris. 1997. *Montana Outdoors*. November/December. MT Fish Wildlife and Parks. Helena, MT.
- Issues & Answers Network, Inc. 2000. Lewis & Clark National Estimation and Awareness Study, Research Report 76.
- Joslin, G. and H. Youmans. Coordinators. 1999. Effects of recreation on Rocky Mountain wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of the Wildlife Society. 307 pp.
- Kallemeyn, L. 1983. Status of the pallid sturgeon, *Scaphirhynchus albus*. *Fisheries*, Vol. 8, No. 1, pp. 3-9.
- Kamps, G.F. 1969. White-tailed and mule deer relationships in the Snowy Mountains of central Montana. Bozeman, Montana: M.S. Thesis, Montana State University. 59 pp.

- Kay, Charles E. 1994. Aboriginal Overkill: The role of Native Americans in Structuring Western Ecosystems. *Human Nature*, 5(4): 359-398.
- Keenlyne, K.D., and L.G. Jenkins. 1993. Age at sexual maturity of the pallid sturgeon. *Transactions of the American Fisheries Society*. 122:393-396.
- Knight, J. 1997. Managing Montana Farm Habitat for Pheasants. Montana State University Extension Service, Bozeman, Montana.
- Knowles, C.J., C.J. Stoner, and S.P. Gieb. 1982. Selective use of black-tailed prairie dog towns by mountain plovers. *Condor* 84:71-74.
- Knowles, C.J., and P.R. Knowles. 1984. Additional records of mountain plovers using prairie dog towns in Montana. *Prairie Naturalist* 16:183-186.
- Knowles, C.J. and P.R. Knowles. 1998. The historic and current status of the mountain plover in Montana. Bureau of Land Management. Billings, Montana. 43 pp.
- Knowles, C.J. and P.R. Knowles. 2001. The 2000 Mountain Plover Survey Results. Bureau of Land Management, Billings, Montana. 31pp with appendix.
- Koch, E.D. and C.R. Peterson. 1995. The amphibians and reptiles of Yellowstone and Grand Teton National Parks. University of Utah Press. Salt Lake City. 188 pp.
- Krentz, S. 1996. Character index for pallid sturgeon and shovelnose sturgeon. Bismarck, North Dakota. U.S. Fish and Wildlife Service 1:96. 1p.
- Kudray, G., P. Hendricks, E. Crowe, and S. Cooper. 2004. Riparian Forests of the Wild and Scenic Missouri River: Ecology and Management. Montana Natural Heritage Program, Helena, MT.
- Kynard, B., E. Henyey, and M. Horgan 1998. Studies on pallid sturgeon: Turner Falls, Massachusetts: U.S. Geological Survey, Biological Resources Division, Conte Anadromous Fish Research Center.
- Lee, S. et al. 1980. Atlas of North American freshwater fishes. North Carolina State Museum of Natural History. Raleigh.
- Liebelt, J.E. 1996. Lower Missouri River and Yellowstone River pallid sturgeon study, 1994-1995. Montana Department of Fish, Wildlife and Parks. Helena.
- Liles, K.J. and Heystek, Hendrick. 1977. The Bureau of Mines test program for clay and ceramic raw materials, U. S. Bureau of Mines Information Circular 8729.
- Lind, Amy J., USDA Forest Service, Pacific Southwest Research Station, Redwood Sciences Lab presentation to Western Regional Urban Streams Conference, Arcata, California, November 15-17, 1996.
- Lovaas, A.L. 1957. Mule deer food habits and range use in the Little Belt Mountains, Montana. *Journal of Wildlife Management* 22(3):3113-320.
- Lyden, C.J., 1948, The gold placers of Montana: Montana Bureau of Mines and Geology Memoir No. 26, 152p.
- Mac, M. J., P. A. Opler, C. E. Puckett Haecker, and P. D. Doran. 1998. Status and trends of the nation's biological resources 2:437-964. United States Department of the Interior, Geological Survey, Reston, Virginia.
- Mackie, R.J. 1965. Range ecology and relations of mule deer, elk and cattle in the Missouri River Breaks, Montana. *Wildlife monograph* No. 20. 79 pp.
- Mackie, R.J., R.F. Batchelor, M.D. Majerus, J.P. Weigand, and V.P. Sundberg. Habitat Management Suggestions for Selected Wildlife Species. Montana State University Extension Service, Bozeman, Montana.
- Magaddino, R. 1989. Living with bald eagles. *Montana Outdoors*. Montana Fish, Wildlife & Parks. Helena, Montana.
- Maxell, B.A. 2000. Management of Montana's amphibians: a review of factors that may present a risk to population viability and accounts on the identification, distribution, taxonomy, habitat use, natural history, and the status and conservation of individual species. Report to USFS Region 1, Order Number 43-0343-0-0224. University of Montana, Wildlife Biol. Prog., Missoula. 161 pp.
- McMahon, Kim. 2001. Montana Lewis and Clark Sites Characteristics of Visitors, Summer 2000.
- Minerals Management Service, 2000. State Mineral Summaries, Fiscal Year 2000, U.S. Department of the Interior.
- Minerals Management Service, 2000, State Mineral Summaries, Fiscal Year 2000, Minerals Revenue Management, U.S. Department of the Interior, quoted from Section 35 of the Mineral Leasing Act of 1920, 30 U.S.C. 191.
- Minerals Management Service, 2003, About the Minerals Management Service, downloaded from the Mineral Management Service website, <http://www.mms.gov/aboutmms/>.

- Minerals Management Service, 2003, Federal Oil Valuation, Proposed Rule, Federal Register, Volume 68, No. 161, Washington D.C.
- Minerals Management Service, 2003, Federal Oil Valuation, Proposed Rule, Federal Register, Volume 68, No. 161, Washington D.C.
- Minnesota IMPLAN Group, Inc., 2000 IMPLAN data, with modifications by NEA.
- Monahan, Glenn and C. C. Biggs. 1997. *Montana's Wild & Scenic Upper Missouri River*. Northern Rocky Mountain Books, Anaconda, Montana.
- Montana Fish, Wildlife, and Parks (MFWP). 1996. Final Environmental Impact Statement: management of mountain lions in Montana. Helena. 138pp.
- Montana Natural Heritage Program (MNHP). 2002. Species information: blue sucker, paddlefish, sturgeon chub, pallid sturgeon. Downloaded from Internet February 2002. Helena, Montana.
- Montana Oil and Gas Annual Review, 1999, Volume 43
- Montana Sage Grouse Work Group. 2005. Management Plan and Conservation Strategies for Sage Grouse in Montana - Final.
- Montana Prairie Dog Working Group. 2002. Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana.
- Moos, R.E. 1978. Movement and reproduction of shovel-nose sturgeon, *Scaphirynchus platyrhynchus*, in the Missouri River, South Dakota. Doctorate Dissertation, University of South Dakota, Vermillion, South Dakota. 216 pp.
- Moss, R. E., J. W. Scanlan, and C. S. Anderson. 1983. Observations on the natural history of the blue sucker (*Cyprinella elongatus* LeSueur) in the Neosho River. The American Midland Naturalist 109(1):15-22.
- Moyle, P.B. and J.J. Cech. 1982. Fishes: An introduction to ichthyology. Prentice-Hall, Englewood Cliffs, New Jersey.
- Moynahan, B. University of Montana. 2005. Personal communication. June 23.
- Murphy, K.M. 1983. The ecology of the cougar (*Puma concolor*) in the northern Yellowstone ecosystem: interactions with prey, bears, and humans. Ph.D. Dissertation. University of Idaho, Moscow. 147 pp.
- National Invasive Species Council (NISC). 2001. Meeting the Invasive Species Challenge: National Invasive Species Management Plan. 80 pp.
- National Soil Survey Handbook, title 430-VI. U.S. Department of Agriculture, Natural Resources Conservation Service. 2003. [Online] Available: <http://soils.usda.gov/technical/handbook/>.
- Natural Resources Conservation Service technical guide, April 1984.
- Niccolucci, M. U.S. Forest Service, Missoula, Montana. 2003. Personal communication. September 12.
- Nielson, L.S. 1978. The effects of rest-rotation grazing on the distribution of sharp-tailed grouse. Bozeman, Montana: M.S. Thesis, Montana State University. 52 pp.
- Olson, S.L. 1985. Mountain plover food items on and adjacent to a prairie dog town. Prairie Naturalist 17:83-90.
- Olson, S.L., and D. Edge. 1985. Nest site selection by mountain plovers in north central Montana. Journal of Range Management 38:280-282.
- Olson-Edge, S.L., and W.D. Edge. 1987. Density and distribution of the mountain plover on the Charles M. Russell National Wildlife Refuge. Prairie Naturalist 19:233-238.
- Patterson, R.L. 1952. The Sage Grouse in Wyoming. Wyoming Game and Fish Commission, and Sage Books, Inc., Denver, CO. 341 pp.
- Perry, E.S., 1962. Montana in the Geologic Past: Montana Bureau of Mines and Geology Bulletin 26.
- Pflieger, W. 1975. The fishes of Missouri. Missouri Department of Conservation. Jefferson City, Missouri.
- Reeves, Frank. 1953. Bearpaw Thrust-Faulted Area, Billings Geologic Society Guidebook 4th annual field conference. P. 114-117.
- Reichel, J.D. and D.L. Flath. 1995. Identification guide to the amphibians and reptiles of Montana. Montana Outdoors 26:15-34.
- Roper Starch Worldwide. May 2001. Lessons from the Environment: The Ninth Annual National Report Card on Environmental Attitudes, Knowledge, and Behavior.
- Rouse, R.A. 1957. Elk food habits, range use and movement, Gravelly Mountains, Montana. Bozeman, Montana: M.S. Thesis, Montana State College, 29 pp.

- Rowley, Arthur E., Montana Geological Society. 1984. Leroy Field Report.
- Ruebelmann, George. 1983. *Archaeology in Montana*. Vol. 24, No. 3.
- Schmidt, Kirsten M.; Menakis, James P.; Hardy, Colin C.; Hann, Wendall J.; Bunnell, David L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. Gen. Tech. Rep. RMRS-GTR-87. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 41 p. + CD.
- Scott, M.L., Skagen, S.K., and M.F. Merigliano. 2003. Relating geomorphic change and grazing to avian communities in riparian forests. *Conservation Biology*. Pages 284-296. Volume 17, No. 1, February 2003.
- Smith, F.H. 1929. Hunters war on predatory animals. *Montana Wildlife*. 2(7):9.
- Stankey, George and Roger Clark. 1991. *Social Aspects of New Perspectives in Forestry: A Problem Analysis*. Consortium for the Social Values of Natural Resources Supported by the Oregon State University and the USDA Forest Service Pacific Northwest Research Station Milford PA: Grey Towers Press
- Stanton, T.W. and J.B. Hatcher. 1905. *Geology and Paleontology of the Judith River Beds. United States Geological Survey, Bulletin 257*. Government Printing Office, Washington D.C.
- State of Montana, Department of Revenue. 2003. Oil and Natural Gas Production Taxes, downloaded from the Department of Revenue website, <http://discoveringmontana.com/revenue/>.
- State of Montana, Office of the Governor. 2001. Report to Secretary of Interior, Recommendations of the Governor's Task Force Upper Missouri River Breaks National Monument.
- State of Montana. 1999. Montana Code Annotated 1999, 15-36-324 (Temporary Distribution of Taxes, Helena, Montana, downloaded from the Montana State website, <http://data.opi.state.mt.us/bills/1999/mca/15/36/15-36-324.htm>.
- State of Montana. 2003. Montana Code Annotated 2003, 20-9-331, Basic county tax for elementary equalization and other revenue for county equalization of elementary BASE funding program, Helena, Montana, downloaded from the Montana State website, <http://data.opi.state.mt.us/bills/2003/mca/20/9/20-9-331.htm>.
- State of Montana. 2003. Distribution of Oil and Gas Production Tax, downloaded from the Montana State website, <http://discoveringmontana.com/revenue/css/3forbusinesses/>.
- State of Montana. 2003. Montana Code Annotated 2003, 15-36-332, Distribution of taxes to taxing units—appropriation, Helena, Montana, downloaded from the Montana State website, <http://data.opi.state.mt.us/bills/2003/mca/15/36/15-36-332.htm>.
- State of Montana. 2003. Montana Annotated Code 2003, 15-70-10, downloaded from State of Montana website, <http://data.opi.state.mt.us/bills/mca/15/70/15-70-101.htm>.
- State of Montana. 2003. Montana Code Annotated 2003, 20-9-333, Basic county tax for elementary equalization and other revenue for county equalization of elementary BASE funding program, Helena, Montana, downloaded from the Montana State website, <http://data.opi.state.mt.us/bills/2003/mca/20/9/20-9-333.htm>.
- Stewart, D. 1981. The biology of the sturgeon chub (*Hybopsis gelida* Girard) in Wyoming. Masters Thesis. University of Wyoming. Laramie.
- The Rocky Mountain Oil Journal. 2003. Volume 83 No. 02.
- The Wilderness Society. 2003. Ecological Effects of a Transportation Network on Wildlife: A Spatial Analysis of the Upper Missouri River Breaks National Monument.
- U.S. Census of Agriculture. 1997.
- U.S. Congress, 1999, 43CFR4130.8-1, Payment of Fees, GPO, downloaded from the Bureau of Land Management website, <http://www.nv.blm.gov/range/Legs%20&%20Regs%20/43CFR4100.htm>, November 19, 2003.
- U.S. Congress, 2002, 43CFR41000, Objectives, GPO, downloaded from the Bureau of Land Management website, <http://www.nv.blm.gov/range/Legs%20&%20Regs%20/43CFR4100.htm#Subpart%204100—Grazing%20Administration—Exclusive%20of%20Alaska;%20General>, November 24, 2003.
- U.S. Congress, 2002, 43CFR2930, Special Recreation Permits, downloaded from the BLM website, <http://www.blm.gov/nhp/new/releases/pages/1999/recfeeqa.html>, November 25, 2003.
- U.S. Congress, 2002, 43CFR2932.

- U.S. Department of Agriculture, Animal Plant and Health Inspection Service (APHIS), Montana State Office. 2001. Plan of Operations.
- U.S. Department of Agriculture, Forest Service (USFS), Northern Region. 1990. Nez Perce (Nee-Me-Poo) National Historic Trail Comprehensive Plan.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 1986. *Soil Survey of Blaine County and part of Phillips County, Montana*.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 1988. *Soil Survey of Fergus County, Montana*.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 2003. *Soil Survey of Chouteau County Area, Montana*.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 2004. *Soil Survey of Phillips County, Montana*.
- U.S. Department of Agriculture, Soil Conservation Service (SCS). 1977. Average Annual Precipitation Montana Based on 1941-1970 Base Period.
- U.S. Department of Army, Corps of Engineers. 1989. Sedimentation in Fort Peck Reservoir, 1937-1987.
- U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, Regional Economic Information System (REIS), 1969-2000, CD-ROM, May 2002.
- U.S. Department of Labor, Bureau of Labor Statistics, www.stats.bls.gov/lau/home.htm.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Montana State Office. 1978. Upper Missouri Wild and Scenic River Management Plan.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Montana State Office. 1979. Final Missouri Breaks Grazing Environmental Statement.
- U.S. Department of the Interior, Bureau of Land Management (BLM), 1980. Miles City and Lewistown Districts. Montana Wilderness Inventory.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1982a. Prairie Potholes Environmental Impact Statement.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District. 1982b. Oil and Gas Environmental Assessment of the BLM Leasing Program.
- U.S. Department of the Interior, Bureau of Land Management (BLM), 1985. Wild Horse and Burro Act.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1986a. Montana Bald Eagle Working Group. Montana Bald Eagle Management Plan. Billings, Montana.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1986b. Wetland Policy.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1986c. West HiLine Management Situation Analysis.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District Office. 1986d. Containment/Eradication of Selected Noxious Plants in BLM Lewistown District.
- U.S. Department of the Interior, Bureau of Land Management (BLM), 1987. Miles City District Office. Missouri Breaks Wilderness Suitability Study/Environmental Impact Statement.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District. 1988. Final West HiLine Resource Management Plan/Environmental Impact Statement.
- U.S. Department of the Interior, Bureau of Land Management (BLM) and U.S. Department of Agriculture, Forest Service (FS). 1989a. Surface Operating Standards for Oil and Gas Exploration and Development. Prepared by BLM/FS Rocky Mountain Regional Coordinating Committee.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1989b. Judith-Valley-Phillips (JVP) Management Situation Analysis.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District Office. 1991. Rangeland Program Summary Update.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District Office. 1992a. West HiLine Resource Management Plan/Environmental Impact Statement Record of Decision.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1992b. Nongame Migratory Bird Habitat Conservation Plan.

- U.S. Department of the Interior, Bureau of Land Management (BLM). 1992c. Upper Missouri National Wild and Scenic River Cultural Resource Management Plan.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District Office. 1993. Upper Missouri National Wild and Scenic River Management Plan Update.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District Office. 1994a. Judith Valley-Phillips (JVP) Resource Management Plan.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District Office. 1994b. Wild and Scenic River Evaluation (Ch. 2, p. 17).
- U.S. Department of the Interior, Bureau of Land Management (BLM), Montana State Office. 1997. Montana/Dakotas Standards for Rangeland Health and Guidelines for Livestock Grazing Management, Environmental Impact Statement.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 1998a. Two Calf Watershed Management Plan and Environmental Assessment.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown District. 1998b. Woodhawk Watershed Interdisciplinary Management Plan.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 1998c. Missouri River Manors: An Overview of Homesteads and Historic Structures along the Upper Missouri Wild and Scenic River.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2000a. Frequently Asked Questions, downloaded from the BLM website, <http://www.blm.gov/nhp/faqs/>.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2000b. Landcatcode Definitions, downloaded from the BLM website, <http://www.blm.gov/nhp/efoia/or/fy2001/ib/b2001-062.htm>.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2000c. Lower Crooked Creek Watershed Plan and Environmental Assessment.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2000d. Armells Creek (Breaks Portion) Watershed Environmental Assessment.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Montana State Office. 2001a. State Director's Interim Guidance for managing the Upper Missouri River Breaks National Monument.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Havre Field Station. 2001b. Guidelines for Integrated Weed Management.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Malta Field Office. 2001c. Beauchamp Watershed Plan.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2002a. Upper Missouri River Breaks National Monument Resource Management Plan Scoping Report.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2002b. Upper Missouri River Breaks National Monument Resource Management Plan Scoping Comment Summary.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2002c. Preparation Plan for the Upper Missouri River Breaks National Monument Resource Management Plan.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Great Falls Oil & Gas Field Station. 2002d. Macum Energy Inc., Klabzuba Oil and Gas Inc., Ocean Energy Resources Inc. Natural Gas Project Environmental Assessment.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2002e. Upper Missouri Watershed Management Plan Environmental Assessment.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2002f. Instruction Memorandum No. 2002-167.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2002g. Instruction Memorandum No. 2002-164.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2002h. Landusky/Zortman Town Sites Hazard Fuel Reduction Project EA (MT-090-02-03).
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2002i. Geophysical Exploration Permit (MT-090-02-09).

- U.S. Department of the Interior, Bureau of Land Management (BLM). 2002j. Interpreting Indicators of Rangeland Health. Technical Reference 1734-6.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Havre Field Station. 2002k. Loma/Vimy Ridge Watershed Environmental Assessment & Plan Amendment.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2003a. GIS Analysis, July 2003, Project File 1616.071, Lewistown, MT.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2003b. Upper Missouri River Breaks National Monument Analysis of the Management Situation.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2003c. Payment in Lieu of Taxes (PILT) Regulations, downloaded from the BLM website, <http://www.blm.gov/pilt/regulations.htm>.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2003d. Payments in Lieu of Taxes, downloaded from the BLM website, <http://www.blm.gov/pilt/summary.htm>.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2003e. Fire/Fuels Management Plan Environmental Assessment/Plan Amendment for Montana and the Dakotas. Billings, Montana.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2003f. Rangeland Management, Current Rates, Grazing, downloaded from the Bureau of Land Management website, www.nv.blm.gov/range/Current_Rates.htm, November 24, 2003.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Farmington Field Office. 2003g. Farmington Resource Management Plan with Record of Decision.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2003h. LR2000 Lands and Records Database.
- U.S. Department of the Interior, Bureau of Land Management (BLM). 2003i. The BLM's Priorities for Recreation and Visitor Services.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2004a. Upper Missouri River Breaks National Monument Resource Management Plan Alternative Development Comment Summary.
- U.S. Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office. 2004b. Land Mineral Records (LR2000).
- U.S. Department of the Interior, Bureau of Land Management (BLM). Lewistown Field Office. 2005. Upper Missouri River Breaks National Monument Oil and Gas Leases Scoping Report.
- U.S. Department of the Interior, Bureau of Reclamation (BOR). July, 1994. Montana Bald Eagle Management Plan. Billings, Montana.
- U.S. Fish & Wildlife Service (USFWS). 1977. Rocky Mountain/Southwestern Peregrine Falcon Recovery Team. Peregrine Falcon Recovery Plan, Rocky Mountain and Southwest Population. 183p.
- U.S. Fish & Wildlife Service (USFWS). 1989. Black-Footed Ferret Survey Guidelines.
- U.S. Fish & Wildlife Service (USFWS). 1993a. Pallid sturgeon recovery plan. U.S. Fish & Wildlife Service. Bismarck, North Dakota. 55 pp.
- U.S. Fish & Wildlife Service (USFWS). 1993b. Pallid sturgeon (*Scaphirhynchus albus*) recovery plan. Prepared by the Pallid Sturgeon Recovery Team for Region 6, Denver, Colorado.
- U.S. Fish & Wildlife Service (USFWS). 1994. 50 CFR 17 58996-59000. Endangered and threatened wildlife and plants; animal candidate review. Federal Register 59;219. Washington, D.C.
- University of Montana – Missoula, Institute for Tourism and Recreation Research, "The Economic Review of the Travel Industry in Montana – 2004 Biennial Edition." Missoula, MT 2004. p. 15.
- Voigt, D.R., and W.E. Berg. 1987. Coyote. Pages 345-357 in M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Wild Furbearer Management and Conservation in North America. Ashton-Potter Limited, Concord, Ontario.
- Weldon, S. 1992. Population status and characteristics of *Macrhybopsis gelida*, *Platygobio gracilis* and *Rhinichthys cataractae* in the Missouri river Basin. Masters Thesis. South Dakota State University. Brookings.

- Weldon, S. 1993. Status report on sturgeon chub (*Macrhybopsis gelida*), a candidate endangered species. U.S. Fish and Wildlife Service, Ecological Services, North Dakota State Office. Bismarck.
- Wilkins, B.T. 1956. Range use, food habits and agricultural relationships of the mule deer, Bridger Mountains, Montana. *Journal of Wildlife Management* 21(2):159-169.
- Williams, Gerald. 2002. Aboriginal Use of Fire: Are there any "natural" plant communities? IN: Charles E. Kay and Randy T. Simmons (eds.) *Wilderness and Political Ecology: Aboriginal Land Management – Myths and Reality*. Logan, UT: University of Utah Press.
- Williams, J. E., J. E. Johnson, D. A. Hendrickson, S. Contreras-Balderas, J. D. Williams, M. Navarro-Mendoza, D. E. McAllister, and J. E. Deacon. 1989. Fishes of North America endangered, threatened, or of special concern: 1989. *Fisheries* (Bethesda) 14(6):2-20.
- Windberg, L.A., and F.F. Knowlton. 1988. Management implications of coyote spacing patterns in southern Texas. *Journal of Wildlife Management* 52:632-640.

GLOSSARY

Actual Production: Actual production that originates from a well within a Unit Participating Area (PA) or Communitization Agreement (CA) that is reported to the Unit PA or CA case number. From a federal or tribal standpoint, it usually denotes that actual production originated from a Federal or tribal well.

Adaptive Management: A process for continually improving management practices by learning from the outcomes of operational programs and recognizing, in advance, that adjustments may be necessary to achieve management goals.

Affected Environment: The natural, physical and human-related environment that is sensitive to changes from the alternatives.

Air Quality: Refers to standards for various classes of land as designated by the Clean Air Act, PL 88-206: January 1978.

Allocated Production: Production that is allocated to a federal or tribal tract/lease within a Unit PA or CA from a non Federal or tribal well. This frequently occurs within CAs where gas is produced from a fee (private) or state well and production is allocated back to the federal or tribal tract(s)/lease(s) within the CA.

Allotment: An area of land where one or more livestock operators graze their livestock. Allotments generally consist of BLM lands but may also include other federally managed, state owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Allotment Categorization: Grazing allotments and rangeland areas used for livestock grazing are assigned to an allotment category during resource management planning. Allotment categorization is used to establish priorities for distributing available funds and personnel during plan implementation to achieve cost-effective improvement of rangeland resources. Categorization is also used to organize allotments into similar groups for purposes of developing multiple use prescriptions, analyzing site-specific and cumulative impacts, and determining tradeoffs.

Alternative: A mix of management prescriptions applied to specific land areas to achieve a set of goals and objectives. Each alternative represents a different way of achieving a set of similar management objectives.

Animal Unit Months (AUMs): The amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month.

Area of Critical Environmental Concern (ACEC): An area that needs special management attention to preserve historic, cultural, or scenic values; to protect fish and wildlife resources or other natural systems or processes; or to protect life and provide safety from natural hazards.

Best Available Control Technology (BACT): Those techniques and methods of controlling emission of pollutants from an existing or proposed source.

Best Management Practices (BMPs): Methods, measures or practices to prevent or reduce water pollution including, but not limited to, structural and non-structural controls, operation and maintenance procedures, other requirements, scheduling and distribution of activities. Usually, BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, economic and technical feasibility.

BLM Roads: A road is a linear route segment that can be created by the passage of vehicles (two-track); constructed; improved; or maintained for motorized travel. The following specifications were used to determine which routes would be inventoried for the Monument transportation plan database:

Motorized travel is not considered cross-country (off-road) on BLM land when:

- The motorized vehicle uses constructed roads that are maintained by the BLM. Constructed roads are often characterized with cut and fill slopes.
- The motorized vehicle use is clearly evident two-track routes with regular travel and continuous passage of motorized vehicles over a period of years. A two-track is where perennial vegetation is devoid or scarce, or where wheel tracks are continuous depressions in the soil yet evident to the casual observer and are vegetated.

BLM Roads – Collector Roads: These Bureau roads normally provide primary access to large blocks of land, and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic of all the roads in the Bureau road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the Bureau. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures.

BLM Roads – Local Roads: These Bureau roads normally serve a smaller area than collectors, and connect to collectors or the public road system. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by effort of terrain (steep and uneven), may be single lane roads with turnouts. Environmental impacts are reduced as steeper grades, sharper curves, and lower design speeds than would be permissible on collector roads are allowable.

BLM Roads – Resource Roads: These Bureau roads normally are spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing Bureau costs, with minimal consideration for user cost, comfort, or travel time.

BLM Roads Maintenance Level 1: This level is assigned to roads where minimum maintenance is required to protect adjacent lands and resource values. These roads are no longer needed and are closed to traffic. The objective is to remove these roads from the transportation system.

BLM Roads Maintenance Level 2: This level is assigned to roads where the management objectives require the road to be opened for limited administrative traffic. Typically, these roads are passable by high clearance vehicles.

BLM Roads Maintenance Level 3: This level is assigned to roads where management objectives require the road to be open seasonally or year-round for commercial, recreation, or high volume administrative access. Typically, these roads are natural or aggregate surfaced, but may include low use bituminous surfaced roads. These roads have defined cross sections with drainage structures (e.g., rolling dips, culverts, or ditches). These roads may be negotiated by passenger cars traveling at prudent speeds. User comfort and convenience are not considered a high priority.

BLM Roads Maintenance Level 4: This level is assigned to roads where management objectives require the road to be open all year (except may be closed or have limited access due to snow conditions) and to connect major administrative features (recreation sites, local road systems, administrative sites, etc.) to county, state, or federal roads. Typically, these roads are single or double lane, aggregate, or bituminous surface, with a higher volume of commercial and recreational traffic than administrative traffic.

BLM Roads Maintenance Level 5: This level is assigned to roads where management objectives require the road to be

open all year and are the highest traffic volume roads of the transportation system.

Casual Use: Activities that involve practices which do not ordinarily cause any appreciable disturbance or damage to the public lands, resources, or improvements and, therefore, do not require a right-of-way grant or temporary use permit. Examples include (but are not limited to) the use of roads for hunting and sightseeing, and ingress/egress on existing roads and trails.

Code of Federal Regulations (CFR): The official, legal tabulation of regulations directing federal government activities.

Communitization Agreement (CA): An agreement to combine two or more mineral leases in order to have sufficient acreage to comply with the spacing required to drill a well. A CA is formed when a federal lease cannot be independently developed in conformity with an established spacing pattern. Well spacing is determined based on state regulation.

Compaction: The process of packing firmly and closely together; for example, mechanical compaction by vehicular, human or livestock activity. Soil compaction results from particles being pressed together so that the volume of the soil is reduced. It is influenced by the physical properties of the soil, moisture content, and the type and amount of compactive effort.

Concentrations of Livestock: The result of high numbers of animals per unit area, such as high density grazing or placement of supplements or salt on a small area. Concentrations of livestock can compact soils and could displace nesting birds. Though only a guideline, an average of two pair of cattle per acre or higher may be considered concentrating of livestock. See Livestock - Stocking Density.

Conditions of Approval (COA): Conditions or provisions (requirements) under which an application for a permit to drill or a sundry notice is approved.

Controlled Surface Use (CSU): Use and occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. CSU is used for operating guidance, not as a substitute for the no surface occupancy or timing stipulations.

Crucial Habitat: Habitat which is basic to maintaining viable populations of fish or wildlife during certain seasons of the year or specific reproduction periods. It can describe any particular range or habitat component, but describes that component which is the determining or limiting factor in a wildlife population's ability to maintain and reproduce itself at a certain level and in good health over the long term.

Cultural Resource or Cultural Property: A definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. See Traditional Lifeway Value, Traditional Cultural Property and Definite Location. Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit. They may be, but are not necessarily eligible for the National Register. See Historic Property or Historic Resource.

Cumulative Effect: The impact on the environment which results from the incremental impact of the action when added to other actions. Cumulative impacts can also result from individually minor but collectively significant actions taking place over a period of time.

Definite Location: Having discernible, mappable, more or less exact limits or boundaries, on a scale that can be established by a survey crew using conventional sensing and recording equipment, by an informant's direct on-the-ground indication, or by precise placement in a documentary source (see Cultural Resource or Cultural Property). For example, an archaeological site or historic district can be said to have definite location, even when boundaries are initially recorded somewhat arbitrarily and are subject to verification.

Direct Effects: Effects on the environment which occur at the same time and place as the initial cause or action.

Ecological Site: A kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and response to management.

Endangered Species: Any plant or animal species which is in danger of extinction throughout all or a significant portion of its range (Endangered Species Act of 1973).

Environmental Justice: Executive Order 12898, Environmental Justice, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Ephemeral Streams: Streams that flow only as a direct response to rainfall or snowmelt events. They have no base flow.

Erosion: Detachment or movement of soil or rock fragments by water, wind, ice or gravity. Accelerated erosion is much more rapid than normal, natural or geologic erosion, primarily as a result of the influence of surface-disturbing activities of people, animals or natural catastrophes.

Erosion Susceptibility: The susceptibility of a soil to erosion when no protective cover is present. The rate of soil displacement depends on the physical properties of the soil, slope gradient and rainfall/snowmelt event.

Exception: Case-by-case exemption from a lease stipulation. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria applies.

Extended Term or Held By Production Lease: A period of time in the life of a lease beyond the initial primary term. A lease can be extended or held by production (HBP) so long as oil or gas is produced in paying quantities. Leases are also allowed to be HBP if they contain a well that is capable of production in paying quantities and may remain shut-in due to the lack of infrastructure.

Federal Minerals: Mineral interests owned by the United States Government regardless of surface ownership. All federal oil and gas mineral interests are administered by the Bureau of Land Management.

Fee Minerals: The title or minerals ownership of land; short for "owned-in-fee" or private ownership.

Floodplains: (1) A strip of relatively flat land bordering a stream, built of sediment carried by the stream and dropped in the slack water beyond the influence of the swiftest current. A water floodplain is overflowed during times of high water; a fossil floodplain is beyond the reach of the highest flood. (2) That land outside a stream channel described by the perimeter of the maximum probable flood. (3) The relatively flat area or lowlands adjoining an ocean, lake, or other body of standing water which has been or might be covered by floodwater.

Fracture Stimulation (Fracking): An attempt to increase production from a well by subjecting the reservoir to enough hydraulic pressure for it to crack. A granular material is injected into the cracks to hold them open when the pressure is released, so that oil or gas can flow through the cracks to a well.

Geocaching: A type of scavenger hunt for waterproof containers bearing treasure using the containers' exact geographic coordinates and Global Positioning System devices.

Grazing District: The specific area within which public lands are administered under Section 3 of the Taylor Graz-

ing Act. Public lands outside grazing district boundaries are administered under Section 15 of the Act.

Grazing Lease: A document authorizing use of the public lands outside an established grazing district. Grazing leases specify all authorized use including livestock grazing, suspended use, and conservation use. Leases specify the total number of AUMs apportioned, the area authorized for grazing use, or both.

Grazing Permit: A document authorizing use of the public lands within an established grazing district. Grazing permits specify all authorized use including livestock grazing, suspended use, and conservation use. Permits specify the total number of AUMs apportioned, the area authorized for grazing use, or both. Permit/permittee as used in this document, unless otherwise stated, refers to both grazing permits and leases/permittee/lessee.

Habitat: The sum total of environmental conditions of a specific place occupied by a wildlife species or a population of such species.

High Stock Density: See Livestock – Stocking Density.

HiLine: The Milk River Basin/U.S. Highway 2 corridor across northern Montana.

Historic Property or Historic Resource: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. The term includes, for purposes of these regulations, artifacts, records, and remains that are related to and located within such properties. The term “eligible for inclusion in the National Register” includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria. (36 CFR 800.2(e); compare National Historic Preservation Act, Section 301, Appendix 5.) (See also Cultural Resource or Cultural Property. “Cultural property” is an analogous BLM term not limited by National Register status.

Incidental Use: Personal use of other vegetative resources on the site where they are obtained, or, if they are transported to a secondary location, personal use of the resources within a reasonable period of time by the person obtaining them.

Indirect Effects: Secondary effects which occur in locations other than the initial action or significantly later in time.

Infiltration: The downward flow of water through pores or small openings into soil or porous rock.

Irretrievable Impact: The commitment of a resource would be considered irretrievable when the project would directly

eliminate the resource, its productivity, and/or its utility for the life of the project.

Irreversible Impact: The commitment of a resource would be irreversible if the project started a process (chemical, biological and/or physical) that could not be stopped. As a result, the resource or its productivity, and/or its utility would be consumed, committed, or lost forever.

Lease Notice: Provides more detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. A lease notice also addresses special items the lessee should consider when planning operations, but does not impose new or additional restrictions. Lease notices attached to leases should not be confused with notices to lessees (NTLs).

Leasehold: The entire area of a lease (could be both within and outside the Monument).

Leave No Trace: A nationwide (and international) program designed to assist visitors with their decisions when they travel and camp on America’s public lands. The program strives to educate visitors about the nature of their recreational impacts as well as techniques to prevent and minimize such impacts. The Leave No Trace principles of outdoor ethics form the framework of Leave No Trace’s message: 1) plan ahead and prepare; 2) travel and camp on durable surfaces; 3) dispose of waste properly; 4) leave what you find; 5) minimize campfire impacts; 6) respect wildlife; 7) be considerate of others.

Lek: An area used by sage- and sharp-tailed grouse for mating displays (strutting ground).

Livestock – Stocking Density: The relationship between the number of animals and the specific unit of land being grazed at any point in time. May be expressed in animal units per unit of land area (animal units at a specific time/area of land).

Livestock – Stocking Rate: The relationship between the number of animals and the grazing management unit utilized over a specified time period. May be expressed as animal units over unit of land area (animal units of a described time period/area of land).

Migratory Birds: Any bird listed in 50 CFR 10.13 and protected by the Migratory Bird Treaty Act (16 USC 703-711).

Mitigation: Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Modification: Fundamental change to the provisions of a lease stipulation, either temporarily or for the term of the lease. A modification may, therefore, include an exemption

from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria applied.

Multiple Use: The harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment. (43 USC 1702). Multiple use involves managing an area for various benefits, recognizing that the establishment of land use priorities and exclusive uses in certain areas is necessary to ensure that multiple uses can occur harmoniously across a landscape.

Neotropical Birds: Birds that breed in North America and winter in tropical and subtropical America.

No Surface Occupancy (NSO): Use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect identified resource values. The NSO stipulation includes stipulations which may have been worded as “no surface use/occupancy,” “no surface disturbance,” “conditional NSO,” and “surface disturbance or surface occupancy restriction (by location).”

No Wake Speed: A speed where white water occurs in the path of the vessel or in waves created by the vessel.

Notice to Lessees (NTL): The NTL is a written notice issued by the authorized officer to implement regulations and operating orders, and serves as instructions on specific item(s) of importance within a state, district, or area.

Payment in Lieu of Taxes (PILT): Federal payments to local governments that help offset losses in property taxes due to nontaxable Federal lands within their boundaries. The key law that implements the payments is Public Law 94-565, dated October 20, 1986. The law was rewritten and amended by Public Law 97-258 on September 13, 1982 and codified at Chapter 69, Title 31 of the United States Code.

Permeability: The ease with which gases, liquids or plant roots pass through a layer of soil. Permeability is measured as the number of inches/hour⁻¹ that water moves downward through a saturated soil.

Perennial Streams: Streams that flow continuously throughout the year.

Personal Watercraft: A motorized recreational watercraft or vessel designed to be operated by a person sitting, standing, straddling or kneeling **on the vessel**, rather than in the conventional manner of operation by sitting, standing or kneeling **inside** the watercraft or vessel. Models normally have an outboard or inboard engine driving a jet pump as the primary source of power. Examples include,

but are not limited to, jet skis, wheeled amphibious watercraft, etc.

Planning Criteria: The factors used to guide development of a resource management plan, or revision, to ensure that it is tailored to the issue previously identified, and to ensure that unnecessary data collection and analysis are avoided. Planning criteria are developed to guide the collection and use of inventory data and information, analysis of the management situation, design and formulation of alternatives, estimation of the effects of alternatives, evaluation of alternatives, and selection of the preferred alternative.

Plant Association: A kind of climax plant community consisting of stands with essentially the same dominant species in corresponding layers.

Plant Community: An assemblage of plants occurring together at any point in time, thus denoting no particular successional status. A unit of vegetation.

Prescribed Fire: Any fire ignited by management actions to meet specific objectives.

Primary Term Lease: A legal instrument by which a leasehold is created in minerals. A contract that, for a stipulated sum, conveys to an operator the right to drill for oil and gas. The oil and gas lease is not to be confused with the usual lease of land or a building. Competitive leases are set up on a primary term of five years. Non-competitive leases are set up on primary terms of 10 years.

Prime Farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops. It has the combination of soil properties, growing season and moisture supply needed to produce sustained high yields of crops if it is treated and managed according to acceptable farming methods.

Production in Paying Quantities (Lease Basis): The volume of oil or gas that is needed to exceed direct daily operating costs and the costs for lease rentals or minimum royalty of a well. This means the well must be capable of generating enough revenue to exceed the ongoing operating costs of the well, no matter how small.

Production in Paying Quantities (Unit Basis): The volume of oil or gas that is needed from a well to return reasonable profit over the costs of drilling, equipping, completing and operating the well.

Proper Functioning Condition (PFC): Riparian-wetland areas are functioning properly when they dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment and

aid floodplain development; improve floodwater retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl, breeding, and other uses; and support greater biodiversity.

Public Land or BLM Land: Any land and interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except (1) lands located on the Outer Continental Shelf; and (2) lands held for the benefit of Indians, Aleuts, and Eskimos.

Rangeland Health: The degree to which the integrity of the soil and the ecological processes of rangeland ecosystems are sustained.

Reclamation: Rehabilitation of a disturbed area to make it acceptable for designated use. This normally involves regrading, replacement of topsoil, revegetation and other work necessary to restore it for use.

Record of Decision: A concise public document disclosing the decision made following preparation of an EIS and the rationale used to reach that decision.

Recreation Management Area - Extensive: An area where recreation management is only one of several management objectives and where limited commitment of BLM staffing and funding for recreation is required.

Recreation Management Area - Special: An area where a commitment of BLM staffing and funding has been made, within the parameters of multiple use, to provide opportunities for specific recreation activities and experiences on a sustained yield basis.

Resource Reserve Allotment: A unit of public land that will not have term grazing permits issued. Such an allotment would only be grazed on a temporary, non-renewable basis to provide temporary grazing to rest other areas following wildfire, habitat treatments, or to allow for more rapid attainment of rangeland health. The allotment must be of sufficient size to be managed as a discrete unit. Resource reserve allotments should be distributed throughout the planning area.

Riparian Zones: Green areas associated with lakes, reservoirs, estuaries, potholes, springs, bogs, fens, wet meadows, and ephemeral, intermittent, or perennial streams. The riparian zone occurs between the upland (terrestrial) zone and the aquatic (deep water) zone. Riparian areas are characterized by water tables at or near the soil surface, and by vegetation requiring high water tables.

Soil: The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of vegetation.

Soil Series: The lowest category of soil classification, consisting of soils that are essentially alike in all major profile characteristics except in the texture of the "A" horizon (surface layer).

Soil Survey: The systematic examination, description, classification and mapping of soils in a survey area. Soil surveys are classified according to the level of detail of field examination based on use and management. Order I is the most detailed, then Order II, on to Order V, the least detailed. As used in this EIS, most of the area was mapped at an Order III survey.

Split Estate: A term used to describe land status when the mineral estate ownership varies from the surface ownership (i.e., federal minerals/private surface). This occurs on approximately 1,640 acres within the Monument.

Spud Date: The date an operator begins drilling the well (i.e., begins drilling through the surface of the earth).

Standards for Rangeland Health: The physical or biological conditions or functions required for healthy, sustainable rangelands.

State Minerals: Mineral interests owned by the state in which they reside.

Steep Slopes: Slopes with a gradient between 20 and 60 percent.

Stipulation: A provision that modifies standard lease rights and is attached to and made a part of the lease.

Succession (Plant Succession): The progressive replacement of plant communities on a site which leads to the potential stability of a natural plant community.

Surface-Disturbing Activities: Those activities which alter the structure and composition of vegetation and topsoil/subsoil. Surface-disturbing activities include road construction, well pads, trenching for pipelines, etc.

Timing Limitation (Seasonal Restriction): Prohibits surface use during specified time periods to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

Total Maximum Daily Load (TMDL): The total amount of a pollutant that a water body may receive from all sources

without exceeding water quality standards. A TMDL can also be defined as a reduction in pollutant loading that results in meeting water quality standards. The TMDL process was established under Section 303(d) of the Clean Water Act. A TMDL includes both a waste load allocation, which focuses on point sources, and a load allocation, which addresses nonpoint sources.

Traditional Cultural Property: A property that derives significance from traditional values associated with it by a social and/or cultural group such as an Indian tribe or local community. See Cultural Resource or Cultural Property and Definite Location. A traditional cultural property may qualify for the National Register if it meets the criteria and criteria exceptions at 36 CFR 60.4. See National Register Bulletin 38.

Traditional Lifeway Value: A social and/or cultural group's traditional systems of religious belief, cultural practice, or social interaction, not closely identified with definite locations. Another group's shared values are abstract, nonmaterial, ascribed ideas that one cannot know about without being told. Traditional values are taken into account through public participation during planning and environmental analysis or through tribal consultation, as applicable. Traditional values may imbue a place with historic significance (see Traditional Cultural Property).

Unit Agreement (Exploratory): An agreement or plan for the development and operation of a well site, which provides for the recovery of oil and/or gas from the lands made subject thereto as a single consolidated entity, without regard to separate ownerships, and for the allocation of costs and benefits on a basis as defined in the agreement or plan.

Unit Participating Area (PA): That part of a unit area which is considered reasonably proven to be productive in paying quantities or which is necessary for unit operations and to which production is allocated in the manner prescribed in the unit agreement.

Upland: The portion of the landscape above the valley floor or stream.

Very Steep Slopes: Slopes with a gradient greater than 45 percent.

Waiver: Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Water Quality: The chemical, physical, and biological characteristics of water in respect to its suitability for a particular purpose.

Watershed: All lands which are enclosed by a continuous hydrologic drainage divide and lie upslope from a specified point on a stream.

Wetlands: Wetland ecosystems share a number of characteristics including relatively long periods of inundation and/or saturation, hydrophytic vegetation, and hydric soils. Despite these common features, wetlands exist under a wide range of climatic, geologic, and physiographic situations and exhibit a wide variety of physical, chemical, and biological characteristics.

Wildcraft: The following definition is taken from Section 76-10-102, Montana Code Annotated: "(9) (a) 'Wildcraft' means to collect, harvest, or separate by cutting, prying, picking, peeling, breaking, pulling, digging, splitting, or otherwise removing uncultivated plants or plant parts from their physical connection or point of contact with the ground or vegetation upon which they are growing or from the place or position where they lay for commercial purposes. (b) The term does not include the collection of: (i) plant material used for a campfire; or (ii) amounts intended for personal consumption."

Wilderness: A wilderness, in contrast with those areas where man and his own works dominate the landscape, is recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.

Wilderness Study Area (WSA): An area determined to have wilderness characteristics. Study areas will be subject to interdisciplinary analysis and public comment to determine wilderness suitability. Suitable areas will be recommended to the President and Congress for wilderness designation. These areas are an interim designation, valid until either designated as wilderness or released to multiple use management.

Winter Range: A range, usually at lower elevation, used by migratory deer and elk during the winter months; usually better defined and smaller than summer ranges.

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APPENDIX A

Proclamation 7398 of January 17, 2001

Establishment of the Upper Missouri River Breaks National Monument

Presidential Documents

Proclamation 7398 of January 17, 2001

Establishment of the Upper Missouri River Breaks National Monument

By the President of the United States of America

A Proclamation

The Upper Missouri River Breaks National Monument contains a spectacular array of biological, geological, and historical objects of interest. From Fort Benton upstream into the Charles M. Russell National Wildlife Refuge, the monument spans 149 miles of the Upper Missouri River, the adjacent Breaks country, and portions of Arrow Creek, Antelope Creek, and the Judith River. The area has remained largely unchanged in the nearly 200 years since Meriwether Lewis and William Clark traveled through it on their epic journey. In 1976, the Congress designated the Missouri River segment and corridor in this area a National Wild and Scenic River (Public Law 94-486, 90 Stat. 2327). The monument also encompasses segments of the Lewis and Clark National Historic Trail, the Nez Perce National Historic Trail, and the Cow Creek Island Area of Critical Environmental Concern.

Lewis and Clark first encountered the Breaks country of the monument on their westward leg. In his journal, Clark described the abundant wildlife of the area, including mule deer, elk, and antelope, and on April 29, 1805, the Lewis and Clark expedition recorded the first big horn sheep observation by non-Indians in North America. Lewis' description of the magnificent White Cliffs area on the western side of the monument is especially vivid, and not just for his sometimes colorful spellings:

"The hills and river Clifts which we passed today exhibit a most romantic appearance.... The bluffs of the river rise to hight of from 2 to 300 feet and in most places nearly perpendicular; they are formed of remarkable white sandstone which is sufficiently soft to give way readily to the impression of water...

"The water in the course of time ... has trickled down the soft sand clifts and woarn it into a thousand grotesque figures, which with the help of a little imagination and an oblique view, at a distance are made to represent eligant ranges of lofty freestone buildings, having their parapets well stocked with statuary; collumns of various sculptures both grooved and plain, are also seen supporting long galleries in front of these buildings; in other places on a much nearer approach and with the help of less imagination we see the remains or ruins of eligant buildings; some collumns standing and almost entire with their pedestals and capitals; others retaining their pedestals but deprived by time or accident of their capitals, some lying prostrate an broken othe[r]s in the form of vast pyramids of conic structure bearing a serees of other pyramids on their tops...

As we passed on it seemed as if those seems of visionary inchantment would never have and [an] end; for here it is too that nature presents to the view of the traveler vast ranges of walls of tolerable workmanship, so perfect indeed are those walls that I should have thought that nature had attempted here to rival the human art of masonry..."

The monument is covered with sedimentary rocks deposited in shallow seas that covered central and eastern Montana during the Cretaceous period.

Glaciers, volcanic activity, and erosion have since folded, faulted, uplifted, and sculpted the landscape to the majestic form it takes today.

The area remains remote and nearly as undeveloped as it was in 1805. Many of the biological objects described in Lewis' and Clark's journals continue to make the monument their home. The monument boasts the most viable elk herd in Montana and one of the premier big horn sheep herds in the continental United States. It contains essential winter range for sage grouse as well as habitat for prairie dogs. Lewis sent Jefferson a prairie dog specimen which was, as Lewis noted at the time, "new to science." Abundant plant life along the River and across the Breaks country supports this wildlife. The lower reach of the Judith River, just above its confluence with the Missouri, contains one of the few remaining fully functioning cottonwood gallery forest ecosystems on the Northern Plains. Arrow Creek, originally called Slaughter River by Lewis and Clark, contains the largest concentration of antelope and mule deer in the monument as well as important spawning habitat for the endangered pallid sturgeon. An undammed tributary to the Missouri River, Arrow Creek is a critical seed source for cottonwood trees for the flood plain along the Missouri.

The cliff faces in the monument provide perching and nesting habitat for many raptors, including the sparrow hawk, ferruginous hawk, peregrine falcon, prairie falcon, and golden eagle. Several pairs of bald eagles nest along the River in the monument and many others visit during the late fall and early winter. Shoreline areas provide habitat for great blue heron, pelican, and a wide variety of waterfowl. The River and its tributaries in the monument host forty-eight fish species, including goldeye, drum, sauger, walleye, northern pike, channel catfish, and small mouth buffalo. The monument has one of the six remaining paddlefish populations in the United States. The River also supports the blue sucker, shovel nose sturgeon, sicklefin, sturgeon chub, and the endangered pallid sturgeon.

The Bullwacker area of the monument contains some of the wildest country on all the Great Plains, as well as important wildlife habitat. During the stress-inducing winter months, mule deer and elk move up to the area from the river, and antelope and sage grouse move down to the area from the benchlands. The heads of the coulees and breaks also contain archeological and historical sites, from teepee rings and remnants of historic trails to abandoned homesteads and lookout sites used by Meriwether Lewis.

Long before the time of Lewis and Clark, the area was inhabited by numerous native tribes, including the Blackfeet, Assiniboin, Gros Ventre (Atsina), Crow, Plains Cree, and Plains Ojibwa. The confluence of the Judith and Missouri Rivers was the setting for important peace councils in 1846 and 1855. In 1877, the Nez Perce crossed the Missouri and entered the Breaks country in their attempt to escape to Canada. The Cow Island Skirmish occurred in the Breaks and was the last encounter prior to the Nez Perce surrender to the U.S. Army at the Battle of Bear Paw just north of the monument. Pioneers and the Army followed Lewis and Clark in the 1830s establishing Fort Piegan, Fort McKenzie, and Fort Benton. Remnants of this rich history are scattered throughout the monument, and the River corridor retains many of the same qualities and much of the same appearance today as it did then.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as a national monument to be known as the Upper Missouri River Breaks National Monument:

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Upper Missouri River Breaks National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Upper Missouri River Breaks National Monument" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 377,346 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. The establishment of this monument is subject to valid existing rights. The Secretary of the Interior shall manage development on existing oil and gas leases within the monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation.

The Secretary of the Interior shall prepare a transportation plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The Secretary of the Interior shall manage the monument through the Bureau of Land Management, pursuant to applicable legal authorities, including the National Wild and Scenic Rivers Act, to implement the purposes of this proclamation.

Because waters of the Upper Missouri River through the monument area have already been reserved through the Congress's designation of the area as a component of the National Wild and Scenic River System in 1976, this proclamation makes no additional reservation of water, except in two small tributaries, the Judith River and Arrow Creek. These tributaries contain outstanding objects of biological interest that are dependent on water, such as a fully functioning cottonwood gallery forest ecosystem that is rare in the Northern Plains. Therefore, there is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water in the Judith River and Arrow Creek sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Montana with respect to fish and wildlife management.

Nothing in this proclamation shall be deemed to enlarge or diminish the rights of any Indian tribe.

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.

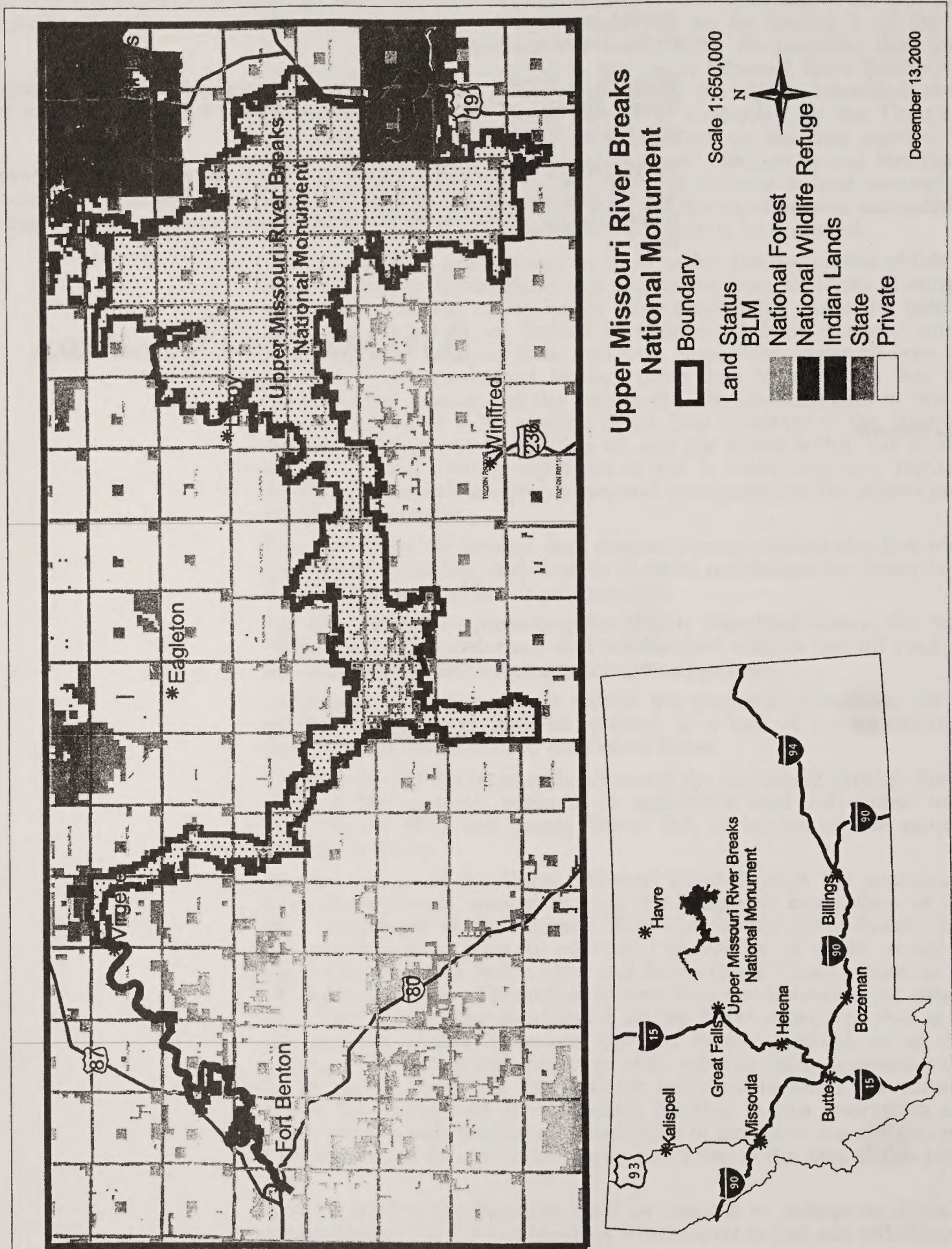
Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this seventeenth day of January, in the year of our Lord two thousand one, and of the Independence of the United States of America the two hundred and twenty-fifth.

William Clinton

Billing code 3195-01-P



[FR Doc. 01-2103

Filed 1-19-01; 8:45 am]

Billing code 3195-01-C

APPENDIX B

Significant Objects

Upper Missouri River Breaks National Monument

Areas of Special Management

Upper Missouri National Wild and Scenic River (UMNWSR)

Congress designated 149 miles of the Upper Missouri as a component of the National Wild and Scenic River System in 1976 calling it an irreplaceable legacy of the historic American West. Congress further stated that the river, with its immediate environments, possesses outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, and other similar values. BLM was directed to preserve the Upper Missouri River in a free-flowing condition and protect it for the benefit of present and future generations. Many of the items listed in this document are the same objects that were used to determine the significance and need for the Wild and Scenic designation.

Location: The UMNWSR boundary starts at Fort Benton, Montana and runs 149 miles downstream to Kipp Recreation Area.

Cow Creek Area of Critical Environmental Concern (ACEC)

The 19,746-acre Cow Creek ACEC contains segments of the Nez Perce National Historic Trail, the Cow Island Trail and the Lewis and Clark National Historic Trail. It also includes portions of the Cow Creek Wilderness Study Area.

Location: Southeastern Blaine County.

James Kipp Recreation Area

The James Kipp Recreation Area is a campground at the terminus of the 149-mile UMNWSR. The 210-acre site is totally surrounded by lands managed by the U.S. Fish and Wildlife Service, Charles M. Russell National Wildlife Refuge. Although the existing recreation area is located on Corps of Engineers land, the BLM has a long-term lease to manage the recreation area which includes a boat ramp and fish cleaning station, campsites, potable water, sewage dump station and vault toilets.

Location: Terminus point of UMNWSR.

Cow Creek Wilderness Study Area

This WSA covers 34,050 acres on the north side of the Missouri River and 21,590 acres have been recommended as suitable for wilderness designation. The size of the area, opportunities for solitude and primitive recreation, and the attractiveness of the setting combine to provide excellent wilderness quality. A diversity of recreational opportunities makes this area excellent for primitive recreational use, and a four-mile-long sheer wall of sandstone is an outstanding scenic feature.

Location: Blaine and Phillips Counties.

Stafford Wilderness Study Area

This WSA covers 4,800 acres on the north side of the Missouri River. More than 90 percent of the WSA is within a rugged portion the UMNWSR corridor. None of this WSA was recommended for wilderness designation because its small size and configuration allows it to be affected by offsite sights and sounds, and because of a high potential for natural gas development. This WSA contains isolated areas that offer outstanding opportunities for solitude, but does not contain outstanding primitive recreation opportunities.

Location: Chouteau and Blaine Counties.

Ervin Ridge Wilderness Study Area

The WSA covers 10,200 acres on the north side of the Missouri River and 5,061 acres along the southern boundary of the WSA are within a wild segment of the UMNWSR corridor. None of this WSA was recommended for wilderness designation due to a variety of resource conflicts and manageability concerns including a high potential for natural gas development. The area is very scenic and rugged, combining steep slopes with narrow ridges.

Location: Blaine County.

Dog Creek South Wilderness Study Area

The WSA is on the south side of the Missouri River and contains 5,150 acres and 3,902 acres are within the UMNWSR corridor. None of this WSA was recommended as suitable for wilderness designation due to the high potential for natural gas development and the potential for

wilderness management conflicts. The small size of this area, along with terrain that opens to major off-site influences just beyond its boundaries, limits the opportunities for outstanding solitude to isolated areas in the deeper drainages.

Location: Fergus County.

Woodhawk Wilderness Study Area

This 8,100-acre WSA is on the south side of the Missouri River. About 3,500 acres of the WSA are within the UMNWSR corridor. None of the WSA was recommended as suitable for wilderness designation due to a combination of the unit's small size, the a cherry-stemmed road running through the WSA, and several resource conflicts. It has a high potential for natural gas reserves. The WSA has colorful broken topography, and several prehistoric occupation sites are in the area. During the steamboat era, woodhawkers (wood cutters) cut timber to fuel steamboats plying the Missouri River. The Nez Perce Indians probably traversed the area in their attempt to escape to Canada in 1877.

Location: Fergus County.

Antelope Creek Wilderness Study Area

The WSA covers about 12,350 acres on the north side of the Missouri River and 9,600 acres have been recommended for wilderness. This WSA offers outstanding opportunities for solitude and provides a diversity of primitive recreational opportunities such as hiking, photography, hunting, and rock climbing. The area is rich in historical significance, including Kid Curry's Outlaw Hideaway.

Location: Phillips County.

Lewis and Clark National Historic Trail

The Lewis and Clark Trail was designated a segment of the National Historic Trail System in 1978. The expedition passed through the Missouri Breaks area in May 1805 and on the return trip in July 1806. Lewis writes about the "white cliffs" and the "breaks" in his journals as the expedition traveled and camped along the Missouri. It is one of the few landscapes along the entire Lewis and Clark National Historic Trail that has remained relatively unchanged since the Lewis and Clark Expedition passed through this area.

Location: 12 Lewis and Clark campsites along the UMNWSR.

Nez Perce (Nee-Me-Poo) National Historic Trail

The Nez Perce National Historic Trail, which crosses the Missouri River Breaks, was designated a component of the National Historic Trail System in 1986. The 1,170-mile route was used by the Nez Perce Indians in an attempt to escape to Canada in 1877. Their escape was marked by more than 20 battles and skirmishes. The Cow Island skirmish, which occurred in the Missouri River Breaks on September 23, 1877, was the last encounter prior to the Nez Perce surrender at the Battle of the Bear Paw just north of the Breaks.

Location: Fergus and Blaine Counties.

Upper Missouri National Wild and Scenic River Watchable Wildlife Area

The entire UMNWSR was designated a Watchable Wildlife Area in 1990 because of the unique and diverse wildlife populations that abound along the river. Visitors come from around the world to view the wildlife.

Location: UMNWSR.

Missouri Breaks Back Country Byway

The Missouri Breaks Back Country Byway was designated in 1993. The Byway has more than 75 miles of gravel and unimproved roads that traverse portions of the Missouri River Breaks and lead to scenic overlooks of the UMNWSR.

Location: UMNWSR.

Areas of Historic Interest

Indian Tribes of the Upper Missouri

Lewis and Clark met some, but not all, of the tribes resident to the Upper Missouri. At the time of their visit (1805-1806) the area west of the Yellowstone River was inhabited by Blackfeet, Assiniboine, Gros Ventre (Atsina), Crow, Plains Cree and Plains Ojibway.

Location: Various.

Homesteading

Most of the Missouri River bottom was homesteaded during the early part of the 20th century or left federal ownership through the Stockraising or Desert Land Acts. The Breaks contains the remains of several early agricultural developments on both BLM and private lands. On BLM land, the Ervin, Hagadone, Middleton and Nelson homesteads have standing structures that are eligible for the National Register and are within the UMNWSR. The

Gilmore homestead is on BLM land within the Missouri Breaks, but outside the UMNWSR boundary.

Location: Various within UMNWSR and Missouri Breaks.

Fur Trade and Forts

Immediately following the Lewis and Clark Expedition, fur traders, primarily based out of St. Louis, began working their way up the Missouri to secure furs, either through trapping or through trade with the Indians. In addition, two Canadian-based British companies had established fur trade in the northern Great Plains and northern Rocky Mountains. With the influx of settlers and fur trappers to the area, Indian tribes, primarily the Blackfeet, kept the area in peril thus delaying the establishment of trading posts. In 1831, Fort Piegan was established at the mouth of the Marias. Many of the forts were short-lived, fluctuating with the trade relationship with the Blackfeet. In 1847, Fort Clay was established and was soon renamed Fort Benton. This fort became the most important trading center in what was to become Montana and was the head of the navigation on the Missouri River.

Location: Various locations along river. More prominent forts discussed below.

White Rocks Historic District

This is a collection of natural features and cultural sites encompassing the White Rocks region of the Missouri. A special feature included within the White Rocks Historic District is some historical graffiti. The U.S.S. Mandan was a government snag boat which worked on the Missouri from the 1880s to 1910. One of the crewmen aboard this ship painted "USS Mandan" in a grotto near Eagle Creek. The historic period graffiti is still visible.

Location: UMNWSR.

Judith Landing Historic District

The Judith Landing Historic District encompasses the PN ranch, Treaty sites, Camp Cooke, Fort Chardon and Ferry Crossings.

Location: UMNWSR - Judith River, BLM and private land.

Dauphin Rapids Historic District

This area was known as a dangerous stretch of river for steamboats, and was often referred to in their historic accounts.

Location: River miles 100 – 104.

Cow Island Trail

This early trail was part of the transportation network which supplied the Montana gold fields in the 1860s and 1870s. Steamboats moved freight up the Missouri River to Fort Benton and bull trains distributed the goods. The Cow Island Trail was used to freight supplies from Cow Island to Fort Benton when the river was too low for boats to reach Fort Benton.

Location: Chouteau County (private and BLM land).

Areas of Geologic Interest

Eagle Sandstone Formation

A light gray to buff colored coarse grained sandstone with ferruginous concretions. It was deposited as beach and barrier facies during regression of an inland sea that covered the central area of the North American Continent during the Cretaceous Period. The formation derives its name from, and is located on, Eagle Creek at its confluence with the Missouri River. It weathers to form statuesque features, arches and hoodoos. Some of the natural features carved from this formation are Eye of the Needle, Hole in the Wall, Steamboat Rock and Seven Sisters.

Location: White Rocks portion of the UMNWSR, from Virgelle to the mouth of Arrow Creek.

Judith River Formation

Gray to Yellowish, massive sandstone interbedded with silty mudstones and lignites containing a wide variety of fossil flora and fauna. It formed as a lagoonal deposit when there were many river deltas and tidal flats on the edge of the transgressing Bearpaw sea during late Cretaceous time. It is an abundant source of petrified wood and invertebrate fossils, and extensive vertebrate bone beds also exist. Some duck bill dinosaur finds from this formation are on display at the Museum of the Rockies in Bozeman, Montana.

Location: The formation is named for, and is located at, the mouth of the Judith River near PN Bridge.

Bearpaw Formation

Dark gray to black thinly bedded shale with calcareous concretions. It was deposited in the deepwater environment of the Cretaceous sea. It is a source of marine shellfish fossils known as ammonites and baculites. Marine reptiles called plesiosaurs and masosaurs have also been found.

Location: The exposed formation starts in the Cow Creek area and extends downstream to Fort Peck Dam.

Hell Creek/Lance Formation

Dark gray to red and green sandstones, siltstones, carbonaceous shales and lignites are present. They were deposited in a lowland area after the last regression of the Cretaceous age Bearpaw sea. These are the latest Cretaceous-aged rocks exposed in the sequence of fossilized beds and are the source of the T-Rex specimens on display at the Museum of the Rockies.

Location: Lower Missouri River Area including the Charles M. Russell Wildlife Refuge.

Alkalic Intrusions

These fine-grained igneous rocks, dominated by dark-colored minerals occur as dikes, sills and stocks injected into fractures in the Cretaceous Age sandstones and shales. They range in age from Tertiary to late Cretaceous. They are more resistant to weathering than the enclosing sedimentary rocks causing them to form promontory features in the surrounding terrain. Some of these that have been named along the river are Dark Butte, LaBarge Rock, Citadel Rock and Pilot Rock. Some of the natural features north of the river are Eagle Buttes, Birdtail Butte and Chimney Rock.

Location: From the Bears Paw Mountains on the north to the Highwood Mountains on the south. They occur throughout the Missouri Breaks but are more visible in the White Cliffs area due to the color contrast.

Saskatchewan Butte

An erosional remnant of a volcanic vent rising about 200 feet above the surrounding terrain located on federal land. The Butte is about 10 acres in size and has potential for gemstone occurrence. It is typical of other features described as the Missouri Breaks Diatremes in numerous professional papers and mineral reports prepared by the U.S. Geological Survey and Bureau of Mines.

Location: North side of the Missouri River near Bull Creek.

Areas of Biological Interest

Judith River Riparian Area

The Judith River has been described as one of the few remaining fully functioning cottonwood gallery forest ecosystems on the Northern Plains. This freeflowing river has a vibrant cottonwood community along its banks that shelters many species of wildlife.

Location: Lower Judith River. About 70 percent of the river bottoms are private land although the surrounding canyon slopes are mostly BLM.

Arrow Creek Riparian Area

Arrow Creek, called Slaughter River by Lewis and Clark, is a mid-sized tributary of the Missouri River. Rising near the Highwood Mountains it flows east then north to the Missouri. With no dams to regulate flow, the majority of the riparian communities along Arrow Creek are healthy and diverse. The bleak badland terrain along the breaks of Arrow Creek yield to the vibrant green of cottonwood trees and willows along its banks.

Location: The lower reaches of Arrow Creek along the Fergus and Chouteau Counties boundary. A significant portion of the bottom land is in private, and the last five miles is mostly State owned. The majority of the "badlands" on either side of the stream is BLM.

Diversity of Vegetative Communities

The combination of Missouri Breaks and Missouri River vegetation communities results in an impressive variety. The Missouri Breaks is a unique landscape composed of mostly timbered coulees and drainages leading from the higher plains down to the Missouri or its tributaries. These timbered draws are composed of ponderosa pine and/or Douglas fir with a smaller component of Rocky Mountain juniper. An understory of various native grasses and forbs exists. Ridge tops and benches in the area support the sagebrush/prairie grassland communities typical of the Northern Great Plains/Northern Rockies. River communities show a wide variety of vegetative types with some examples being cottonwood gallery forest types, green ash climax type, silver sagebrush and black greasewood types and many others.

Location: Throughout the Missouri River Breaks area. Mostly on BLM land with a much smaller percentage on state and private land.

Wildlife

The variety of vegetation along the river and its associated areas provides habitat for a diverse wildlife population. More than 60 mammals, 233 species of birds and 20 species of amphibians and reptiles inhabit these areas. The river itself is home to 48 species of fish ranging from the half-ounce minnow to the 140 pound paddlefish.

Mammals: The area between the river's edge and the mixed forested, sagebrush steppe and agricultural land along the canyon rims provides valuable habitat for several species of mammals. Probably the most significant of these mammals

are the special status black tailed prairie dog and five big game animals: bighorn sheep, elk, mule deer, whitetail deer and pronghorn antelope. The canyon areas also provide habitat for predator species. Mountain lions appear to be doing well in the breaks portions of the corridor.

Birds: Of the 233 species of birds that inhabit the corridor, the bald eagle is on the T&E list and the peregrine falcon and mountain plover are considered special status species. The cliff faces provide perching and nesting habitat for many raptors and other birds. The more significant and abundant of the cliff nesters (golden eagle, prairie falcon, sparrow hawk, and Canada geese) are using some of the cliffs adjacent to water to nest in. There are four species of upland game birds present in the corridor: gray partridge, sharp-tailed grouse, sage grouse, and ringnecked pheasant. Two other species along the river are the white pelican and the great blue heron.

Fish: Forty-eight species of fish are found in this area of the Missouri River and its tributaries. Of these, the pallid sturgeon is on the T&E list and five are considered to be special status species: blue sucker, paddlefish, sauger, sicklefin chub, and sturgeon chub. Walleye, channel catfish, and shovelnose sturgeon are also present.

Location: River corridor and surrounding environments.

Threatened and Endangered Fish - Pallid Sturgeon

Pallid sturgeon were listed as federally endangered in 1990. This species has also been listed as a Montana Species of Special Concern (MSSC) since the list was first started in 1979. The first record of pallid sturgeon in the Missouri dates back to the late 1880s. It is believed that construction and operation of Canyon Ferry, Tiber, and Fort Peck dams/reservoirs have altered habitat and fragmented pallid sturgeon populations to the point that they are now threatened with extinction. Pallid sturgeon recovery is in its initial stages and consists of protection of the gene pool by stocking hatchery-reared fish and re-creating the important spring pulse of the Marias River.

Location: Various habitat areas along the Missouri River.

Threatened and Endangered Bird - Bald Eagle

Bald eagles have historically nested on the Missouri River and there are at least two known long-term active nests. There is suitable habitat to support additional bald eagle nests on the river. One limiting factor may be the distribution of stands of large cottonwoods along the river. The Missouri River is an important stop for spring and fall migrant eagles that nest further north.

Location: Various habitat along the Missouri River.

Special Status Mammal - Black Tailed Prairie Dog

The black tailed prairie dog was eligible for listing but precluded by the USFWS in February 2000. Even though prairie dog towns are limited due to topography, the opportunity for black-footed ferret occupation and other species associated with prairie dog towns (burrowing owls, ferruginous hawks, and mountain plovers) exists. Prairie dog towns provide unique habitat that attracts a large number of wildlife species, particularly predators such as coyotes and badgers.

Location: Small towns scattered throughout the UMNWSR, primarily in the Bullwhacker and Cow Creek drainages.

Special Status Bird - Peregrine Falcon

The Peregrine Falcon is one of the few species to be delisted from T&E status. The Missouri River corridor has excellent potential to support breeding pairs of peregrine falcons but none have been positively identified at this point. Several adult peregrines have been seen near the river in the last few years. Approximately 24 young peregrines have been released at a hack site on the Missouri River since 1993 and there are at least two other hack sites in the Fergus county area that have released similar numbers of birds.

Location: Cliff nesting sites along the river corridor provide potential habitat.

Special Status Bird - Mountain Plover

This species is proposed to be listed as threatened by the USFWS. Mountain plovers would most likely occur on shortgrass prairie habitat which is very limited in the UMNWSR, but they are also known to nest on or near prairie dog towns. They are attracted to the prairie dog town due to the lack of vegetative cover and abundant insects that consume prairie dog dung.

Location: No direct observations documented to date. Potential habitat on any of the prairie dog towns in the corridor, particularly on the larger towns in Bullwhacker and Cow Creek drainages.

Special Status Fish - Sauger

The sauger is a game fish that was added to the MSSC list in June 2000 because of the widespread declines in sauger populations throughout Montana. This designation recognizes that sauger are more vulnerable to relatively minor disturbances to its habitat and deserves careful monitoring of its status. A severe decline in sauger numbers was first noticed in 1989. Populations remained very low through

1997, especially in the reach between Great Falls and at the confluence of the Judith River. The drought conditions in the late 1980s and early 1990s are thought to have been the reason for the decline.

Location: The sauger is commonly found throughout the Missouri River and its tributaries.

Special Status Fish - Paddlefish

Paddlefish is a very popular game found in the Breaks portion of the river. Because of its biological vulnerability, it was placed on the original MSSC list in 1979. Paddlefish once migrated up the Marias River, however, recent surveys have failed to confirm their presence there. It is believed that operations of Tiber Dam have contributed to their abandonment of this tributary stream. Evidence of spawning has been documented as far up river as Coal Banks, although the bulk of spawning probably occurs down river of Cow Creek. The paddlefish population in the Missouri appears to be stable.

Location: Paddlefish are most commonly found seasonally from Fort Peck Reservoir to Coal Banks during the spawning season (May-July).

Special Status Fish - Blue Sucker

Because of the Blue Sucker's biological vulnerability it was listed as a MSSC in 1994. The species prefers sections of river with large substrates and steep gradients, such as the White Rocks section. The blue sucker conservation status here is steady, however, there does not appear to be normal numbers of juveniles. Comparisons of size (age) structures over the past 20 years indicate the population is stable with low recruitment.

Location: Blue suckers have been found throughout the Missouri and Marias Rivers.

Special Status Fish - Sicklefin Chub

Sicklefin chub were found in the Missouri in 1979. Because of significant declines throughout its range, it was petitioned for federal protection in 1990. Presently, USFWS is under litigation for not listing this species. Sicklefin has been classified as a MSSC since 1979. Populations appear to be stable.

Location: This species is found in moderate numbers from Cow Creek to Fort Peck Reservoir. They are only found in the Missouri River, preferring turbid water and deep water areas with sand bars.

Special Status Fish - Sturgeon Chub

Sturgeon chub were found in the Missouri in 1979. Because of significant declines throughout its range, it was petitioned for federal protection in 1990. Presently, USFWS is under litigation for not listing this species. Sturgeon Chub has been classified as a MSSC since 1979.

Location: Cow Creek to Fort Peck Reservoir. They are also found in some tributaries, preferring turbid water and deep water areas with sand bars.

APPENDIX C

Scoping Issues

A planning issue is a “concern or controversy about existing and potential land and resource allocations, levels of resource use, production, and related management actions.”

An issue is a subject of interest or concern to the public or a particular group. This usually means that one or more individuals or groups are interested in a resource or land use on public land, that each may have different values for the resource, and that there are different ways (opportunities or alternatives) to resolve the issue. Issues may be identified by local, state or national needs or may reflect conditions specific to the Monument. Issue identification is an ongoing process. Identified issues may change throughout the planning process as new concerns are identified and others resolved.

Management concerns are issues that can be resolved by the BLM or another agency. While some concerns overlap issues, a management concern is generally more important to an individual or a few individuals, as opposed to a planning issue, which has a more widespread point of interest. Addressing management concerns in the Monument Resource Management Plan (RMP) helps ensure a comprehensive examination of BLM’s land use management. Management concerns will be modified as the planning process continues; however, they will usually not be addressed in an RMP as thoroughly as an Issue.

Preliminary issues and management concerns were identified in the Preparation Plan for the Monument RMP (February 2002). These early issues were identified by the BLM and other agencies at meetings, and/or were brought up by individuals and groups by way of phone calls, emails, letters, and past meetings concerning the proposed monument designation. They represented the BLM’s expectations (prior to scoping) about what concerns or problems exist with current management. These preliminary issues were displayed during the scoping open houses and included in the June 2002 Newsletter.

The preliminary issues were then modified based on the scoping comments. Scoping also identified a new issue: economic and social conditions (Scoping Report 2002 and January 2003 Newsletter).

Issues Addressed

The major issues addressed in the Monument RMP are listed below, some of which overlap one another. Each major issue or theme has a number of different sub-issues and management concerns which address more specific uses and resources related to the topic.

- Issue 1. How will human activities and uses be managed?
- Issue 2. What facilities and infrastructure are appropriate to provide visitor interpretation and administration of the Monument?
- Issue 3. How will the BLM manage biological, historical, cultural, and visual values of the Monument?
- Issue 4. How will Monument management be integrated with other agency and community plans?
- Issue 5. How will transportation and access be managed?
- Issue 6. How will Monument management affect economic and social conditions in the area?

Issue 1: How will human activities and uses be managed?

The Monument provides a variety of activities and uses. Recreational activities include motorized and non-motorized touring; upland game bird and big and small game hunting; backpacking; horseback riding; sightseeing; pleasure driving; river floating; motorized river boating; and the backcountry use of small fixed-wing aircraft on primitive landing strips. A subgroup of the Central Montana RAC addressed visitor use recommendations for the river portion of the Monument. The designation of the Bear Paw Battlefield National Park in 2005, may result in increased use along the Nez Perce National Historic Trail. A new BLM interpretive center in Fort Benton, which is under construction and scheduled to open in 2006, will focus on Monument values and uses both on the Missouri River and in the uplands.

Commercial guides and outfitters, operating under special recreation permits from the BLM, provide services related to some recreational activities such as hunting and river floating. Increased visitation has led to increased demands for visitor services, requests for outfitter permits, requests for aerial tours of the Monument, and a higher demand for emergency services such as search and rescue.

A number of non-recreational uses also occur in the Monument, including rights-of-way for roads, utility lines and communication sites, livestock grazing, etc. All of these activities have an effect on the area environment and on

local communities surrounding the Monument. Careful management of these activities is crucial to protecting the Monument resources.

In some instances, such as oil and gas leasing within the Monument, valid existing rights are in effect and must be recognized in the RMP. In March 2000, the Montana Wilderness Association filed suit challenging BLM's issuance of three of these leases, alleging the BLM did not fully comply with NEPA, the Endangered Species Act, and the National Historic Preservation Act. In March 2004, the Montana Federal District Court ruled in favor of the plaintiffs and ordered the BLM to prepare an EIS for the oil and gas leasing program that covers the three leases. The leases involved in the suit, as well as nine others in the Monument, were based on the BLM's 1988 West HiLine RMP. In light of the court's ruling, the BLM believes all 12 leases in the Monument and based on the West HiLine RMP should be analyzed in this Monument RMP. This RMP will consider the current stipulations that apply to the 12 leases issued under the West HiLine RMP, and the conditions of approval or mitigating measures that should be applied to surface occupancy and surface-disturbing activities associated with all 43 oil and gas leases in the Monument, which cover about 42,000 acres.

Overall Management

The Monument will be managed to protect the resources in accordance with the Proclamation, the Federal Land Policy and Management Act, and other applicable provisions of the law. The Proclamation specifically refers to the Monument's archaeological, historical, geological, and biological objects and provides for the proper care and management of the objects to be protected.

How will the Monument be managed to provide conservation principles that will not allow development or uses that defeat the protective purpose of the designation?

How will the Monument be managed to maintain the area as it is today for future generations?

How will the Monument be managed to provide for traditional uses while ensuring the long-term health and viability of the area?

How will the Monument be managed to preserve the wild and undeveloped character?

How will development in the Monument be managed to maintain the primitive qualities of the area?

How will the Monument be managed to protect the natural values and wild character while allowing controlled use?

What will be the impacts on the objects for which the Monument was created given allocations proposed in any potential alternative?

Private and Commercial Recreation Use

Recreational activities occur throughout the area and include motorized and non-motorized touring, big and small game hunting, backpacking, horseback riding, sightseeing, pleasure driving, and river floating.

Commercial guides and outfitters provide services for some recreational activities, such as hunting and river floating. Increased visitation has led to increased demands for visitor services and requests for outfitter permits.

What range of recreational opportunities (vehicle touring, mountain biking, backpacking, car camping, horseback riding, boating/floating, etc.) should be provided to meet the wide variety of public demands (healthy physical pursuits, needs for solitude, etc.) while protecting and preserving the natural, historic, and primitive values of the Monument?

What BLM actions are needed to provide these opportunities in ways that ensure the experiences and benefits visitors desire while protecting the natural resources in the Monument?

How will the management plan determine the location, distribution, signing, advertising, and use of dispersed camping areas along the river and in the uplands?

Are motorized watercraft impacting the physical conditions on the river and the solitude floaters come to enjoy, and to what extent should motorized watercraft be allowed?

How will the existing guide and outfitter use, both on the river and in the uplands, be managed in the future to ensure compliance with Monument objectives and improve public service in the Monument while ensuring equitable access to recreation opportunities for all users?

Should opportunities be provided for one-day trips in the White Cliffs section of the river?

What methods and criteria will be used to determine the appropriate levels of use or carrying capacity limits for all types of private and commercial recreation use in the Monument? Is an allocation or permit system needed on the river to protect resources and limit social and physical impacts? If so, how will a permit system be developed that is equitable to all users? Is a designated campsite requirement needed to manage physical and social visitor use impacts? Is a group size

limitation needed on the river, and if so, what is the appropriate size?

What criteria will be used to determine if new commercial uses, such as vending permits, should be allowed, where they should be allowed, and to what extent?

If recreation uses need to be more restrictively managed, what types of regulations would be implemented, when, and where, and how would they be administered and enforced?

How will conflicts between recreation visitors and other traditional users (grazing permittees, hunters, surrounding private land owners, etc.) be handled in order to eliminate or reduce these conflicts?

To what extent should recreation user fees be implemented within the Monument?

Off-Highway Vehicle Management

Off-highway vehicle use in the Monument has increased over the last few years and is becoming a focus of concern for BLM managers, interest groups, and the general public. The Proclamation states, "For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes."

What criteria will be used to determine roads and trails that are open for OHV use or roads and trails that need to be closed and reclaimed?

What routes are available for motorized and mechanical vehicle use, if any? What routes are available for only motorized or mechanized use? For example, are there routes that should remain open for mountain bike use only?

What are the needs and opportunities for special transportation and access development, such as backcountry byways, disabled access routes, horse trails, overlooks, etc.?

Livestock Grazing Management

Many existing laws and regulations govern grazing on public land. In 1997, the Secretary of the Interior approved new Standards for Rangeland Health and Guidelines for Livestock Grazing Management, which apply to all BLM lands in Montana. The Proclamation states, "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument." Grazing uses in

the Monument must be managed in compliance with these laws, regulations, and standards.

How will livestock grazing be managed and improvements maintained or constructed throughout the Monument in order to be sensitive to the needs of the livestock/agriculture industry, result in as little impact as possible to the Monument's resources, and be in compliance with grazing regulations and standards?

Considerations in looking at livestock grazing management include the potential alteration of natural vegetation communities, recreation/grazing conflicts, riparian area management, range improvements/ treatments/maintenance, and socio-economic impacts on permittees.

Oil and Gas and Valid Existing Rights

Subject to valid existing rights, the Monument lands under the Proclamation are "appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument." The 42,805 acres of federal minerals in the Monument, in southern Blaine County and northern Fergus County, that were leased for oil and gas exploration and development prior to the Proclamation shall remain open to such activities. The oil and gas development is to be managed "... subject to valid existing rights, so as not to create any new impacts that interfere with the proper care and management of the objects protected by this proclamation."

How will the subject of valid existing rights be addressed in the plan? What is the energy resource within the Monument?

What level of development is necessary to promote conservation of oil and gas resources, comply with the requirements of the Proclamation, honor valid existing rights, and protect against drainage?

What conditions of approval are necessary on oil and gas exploration and development to protect the Monument's resources (e.g., wildlife, wildlife habitat, water quality, air quality, and soils) while not at a level with so many restrictions that lease operations are basically uneconomical?

Will a different approach be taken for managing oil and gas activity within the Monument versus how oil and gas activity is managed outside the Monument?

What indicators or units of measure will the BLM use to determine if oil and gas operations interfere with the proper care and management of the Monument?

Fuel Wood and Vegetative Use Permits

The State Director's Interim Guidance for managing the Monument states it is not the BLM's intent to conduct forest sales within the Monument. However, areas for forest products could be identified at the BLM's discretion, as long as the resources for which the Monument was established are not adversely impacted. Also, before these products are lost to prescribed fire or mechanically cleared for fuel reduction, the BLM may consider a forest product sale. The harvesting of all woodland products would be fully analyzed in the plan for compliance with Monument management goals and objectives.

What criteria will be used to determine if the harvesting of vegetative products, such as Christmas trees/boughs, posts/poles, saw logs, native plant seed, medicinal plants, berries, etc. is compatible with Monument management objectives?

If determined compatible with Monument management objectives, where and at what level of use would the harvesting of woodland products be allowed?

Utility Corridors, Rights-of-Way, and Withdrawals

Seven right-of-way corridors in the Upper Missouri National Wild and Scenic River were identified in the West HiLine RMP. New applications for rights-of-way would be processed pursuant to existing policies and practices, valid existing rights, and as necessary for access to private or state lands.

What areas within the Monument should be identified as suitable for right-of-way routes for major utilities and roads?

How will increased demands for energy and communication rights-of-way be accommodated within the Monument?

What mitigation measures, or terms and conditions, would be appropriate for lands that are suitable for right-of-way routes?

Land Tenure Adjustments

As stated in the Proclamation, no BLM land in the Monument will be disposed of other than by exchange with willing private landowners, which would be done only when necessary to further the protective purposes of the Monument, to block up BLM land within the Monument,

and to enhance the values for which the Monument was designated.

What criteria should be applied when considering acquisition of non-federal lands to be added to the Monument?

Relationship with In-Holdings

The Proclamation designating the Monument applies only to BLM land. Approximately 82,000 acres of private land are intermingled with the Monument.

What management actions are necessary to ensure access to private land?

What limitations, if any, are necessary to protect Monument resources from impacts of private land access?

Indian Reservations

The Monument does not border any American Indian Reservation. However, the Monument does border American Indian lands outside the boundary of the Fort Belknap Indian Reservation.

What management actions are necessary to provide for consistent management activities that recognize values and uses on adjoining American Indian lands?

Issue 2: What facilities and infrastructure are appropriate to provide visitor interpretation and administration of the Monument?

The planning area is characterized as a predominantly natural environment with few facilities, other than along the UMNWSR, for the comfort and convenience of visitors. Currently, the BLM has a visitor contact station and an office located in Fort Benton, and a variety of recreation sites along the UMNWSR. Additional facilities may be needed for visitor safety and information, disabled access, and to address human sanitation, vehicle use and other resource uses and impacts.

What level of visitor services is compatible with the Monument resources and purpose?

To what extent, degree, and where are additional visitor facilities needed such as trails, restrooms, interpretive areas, campgrounds, public drinking water, waste disposal, and parking areas? Should existing facilities be removed or modified for compatibility with Monument goals?

What level of development, choice of standards, consistency, and kind of maintenance would be required

for existing or proposed visitor facilities, including signing?

Issue 3: How will BLM manage biological, historical, cultural, and visual values of the Monument?

Various ways of protecting resources include enforcing existing laws and regulations, educating visitors, managing access, setting management and research priorities, suppressing wildfires and managing fuels, restoring degraded ecological conditions, or some combination of these approaches.

Some of the Monument's major resources for which management decisions must be made by the BLM include cultural, recreation, riparian communities, vegetation and water resources, as well as biodiversity and wildlife habitat.

Cultural and Historical Values

The Monument contains a complex landscape and remarkable cultural and historical values ranging from old homesteads and steamboat graffiti, to buffalo jumps and teepee rings.

How can the traditional ranching history of the area be integrated into management of the Monument?

Where and how will interpretation be used as an education tool to increase the public awareness and appreciation of the Monument's cultural and historical resources while not diminishing the integrity and experience of visiting the location, or the setting being compromised by developed recreation, noise, and excess visitation?

What criteria will be used to determine if stabilization/preservation of features/structures is appropriate (cost vs. benefit or value or feature)?

What, if any, are the future research needs for the Monument?

What areas need additional inventory and evaluation for cultural and historical resources?

What role will partnerships play in site stewardship, stabilization, and interpretation of the cultural and historical features within the Monument?

Wildlife and Fisheries Habitat

Monument lands provide habitat for a variety of wildlife species. Increased use throughout the Monument, including recreation use and motorized vehicle use, requires careful planning to integrate habitat management with

other resource programs in order to minimize impacts to wildlife species and their habitats.

What level of animal damage control will be permitted, in what manner, and where?

How will beaver be managed to maintain riparian areas?

How will human activities that result in wildlife displacement be managed?

What information will be needed (e.g., crucial habitat, corridors, indicator species) to adequately assess wildlife habitat and develop management actions to improve or restore habitat conditions?

How will biodiversity in wildlife communities be maintained or restored?

How will prairie dog towns be managed in the Monument?

How will sage grouse habitat be managed in the Monument?

How will the management plan address threatened or endangered species, including recovery areas in the Monument? How will human activities or uses be managed to provide for the recovery of threatened or endangered species and species of special concern?

Vegetation

Vegetation provides food and cover for wildlife and domestic animals and scenic enjoyment for people. It is a key ingredient in determining the health of the public land because it influences the quantity of water produced from area watersheds and affects overland flows and soil movement, which lead to erosion and loss of habitat. Non-native plants and noxious weeds displace native species, affect the structure of plant associations and their ecological function, and threaten biodiversity.

What are the desired conditions of the vegetation types in the Monument?

How will biodiversity in vegetation and associated communities be maintained or restored?

How will the BLM landscape health standards be achieved and to what extent will land use activities be modified to meet these standards?

How will the management plan address the erosion of sites and how will this be considered in any project development?

How should noxious and invasive plants be managed in the Monument? Which non-native plants are invasive or noxious? What can be done to manage noxious weeds and restore native plants? What prevention activities can be developed and implemented in the Monument to control the influx of undesirable plants and noxious weeds?

Riparian and Water Resources

Riparian areas attract and concentrate populations of area mammals, birds, reptiles, and amphibians; provide habitat for diverse vegetation communities not found elsewhere in the area; and help protect water quality by filtering sediments and protecting banks from erosion. Riparian areas, however, are affected by intensive recreation use, removal of natural vegetation, beavers, livestock grazing/trampling, and other surface disturbances. All of these influences can cause bank disturbance, destabilization of stream channels, increased erosion and siltation, disruption to riparian-dependent plants and wildlife, and degradation of water quality.

How will Monument riparian communities be protected and cottonwood stands regenerated, and how will this affect land uses?

What measures must be taken to ensure that the highest quality water standards are maintained throughout the Monument?

How is the Monument going to affect my existing water rights?

How will the exercise of private water rights affect Monument purposes?

Fire Management

Fire could be a positive influence in much of this area and help restore natural fire regimes. However, fire occurrence in certain areas of heavy fuel loading (such as timbered coulees) and areas of heavy brush and grass growth could threaten improvements and structures in the Monument area. High-intensity fires can also threaten wildlife values and the desired condition of vegetation and riparian areas.

In order to protect Monument values, does a fire management plan need to be developed specifically for the Monument? What level of fire protection is needed in the Monument?

For what purposes, and how, will fire be used as a management tool in the Monument? For example, will fire be used to help reduce hazardous fuel loads? Where are the hazardous fuels within the Monument? Should fire be allowed to take its natural role in the

environment? How will the management plan consider fire risk, hazards, and mitigation?

What is the public perception of suppression philosophy and the impacts, such as smoke, to the Monument and surrounding communities?

What alternative methods for treating hazardous fuels will be permitted within the Monument?

How will wildland and prescribed fire be managed to enhance fire-adapted ecosystems and restore natural fire regimes?

Issue 4: How will Monument management be integrated with other agency and community plans?

The BLM has a strong commitment to work with other agencies and communities in managing the Monument. Coordination with state agencies that have jurisdiction over resources within the Monument is essential for effective management. These agencies include Montana Fish, Wildlife & Parks, and the Montana Department of Natural Resources and Conservation.

Monument objectives call for a significant portion of visitor services related to the Monument to be located in the surrounding communities rather than within the Monument. In order to do this, a good working relationship with local tourism and service providers must be developed and maintained. Agreements with the local counties and communities for coordinating activities and needs such as planning, transportation, emergency services (i.e., search and rescue), law enforcement, infrastructure and tourism need to be explored.

County Land Use Plans

The BLM shall, to the extent practical, keep apprised of local land use plans, and assure that consideration is given to those local land use plans.

What management actions in the Monument conflict with county ordinances, or are needed to make actions consistent?

How will county road designations and increased levels of use be dealt with in the Monument plan?

Emergency Services (Blaine, Chouteau, Fergus and Phillips County Sheriffs)

The Blaine, Chouteau, Fergus and Phillips County Sheriffs' Departments conduct emergency services in the Monument. The BLM assists as requested with available resources. Assistance requests are made through the Field Staff Ranger in the Lewistown Field Office. The following

questions will need to be answered in the plan to arrive at a single, coordinated and effective approach to handle these activities.

What criteria will best determine when an emergency situation warrants the impacting of Monument values in order to properly deal with emergencies such as fires, emergency evacuations, law enforcement activities, deceased persons, or aircraft accidents/investigation?

What is the simplest process for considering and approving or rejecting requests for these activities anywhere in the Monument, assuming by their nature that the activities require a quick response from someone in authority?

What will be required, if anything, to establish or maintain cooperative relations with the County Sheriffs' Departments relative to these activities?

Are restrictions needed to protect Monument values? How will the additional risk of human-caused fires brought on by increased visitor use be managed?

Tourism Management

Monument objectives call for a significant portion of visitor services related to the Monument to be located in the surrounding communities rather than within the Monument.

How can the BLM best work with the tourism industry, local businesses, etc., to ensure that visitors to the Monument are provided with the right information about the Monument and the activities it offers?

How will tourism be managed to prevent degradation of the resources for which the Monument was designated?

What tools/sources such as interpretation and advertising need to be utilized on local, regional, and national levels for information and education about the Monument?

What messages about the Monument need to be conveyed?

How will the BLM incorporate visitor and local preferences into Monument management?

U.S. Fish and Wildlife Service Consultation

The Endangered Species Act, Section 7 Programmatic Consultation and Coordination will be conducted as necessary during plan development.

Early interagency communication, coordination, consultation and conferencing on candidate, proposed, and listed species will take place prior to and during plan development.

Issue 5: How will transportation and access be managed?

A network of local, collector and resource roads currently provides access to many areas of the Monument. County roads are routinely graded and maintained by Blaine, Chouteau, Fergus and Phillips Counties, while BLM-managed routes receive various levels of maintenance based on a BLM maintenance schedule.

What roads and trails should the BLM provide for access to or across public land in the planning area? How will the need for state and private land access be addressed in the plan? How will access be managed where select persons have access to public resources and the general public does not; and how will specific means of access be accommodated?

Are the current roads adequate or do they need to be modified to increase protection for Monument resources, reduce user conflicts, and/or provide better travel opportunities for Monument users? How should management of roads accommodate the elderly and disabled? How should the need for new road construction and maintenance be addressed in the plan?

How many and what type of motorized travel routes are needed on public land in the Monument, and what type of vehicle restrictions, if any? Is it necessary to distinguish between upland use and river access needs?

What roads and trail easements should be acquired to provide reasonable public and administrative access to the Monument lands?

What roads and trails in the Monument should be closed and/or rehabilitated to protect resources, or eliminate or reduce use conflicts?

How should aircraft be managed in the Monument? Is there a need for designated landing strips or areas, and what level of standard and maintenance should be attached to airstrips? How will BLM interact with airspace managers to provide for or influence direction of air traffic compatible with Monument goals?

Issue 6: How will Monument management affect economic and social conditions in the area?

The Monument can provide tourism, hunting, and other forms of recreation while bolstering the economy of Montana. Monument management must recognize the continu-

ation of existing land ownership and the economic activities that are dependent on the land and its natural resources.

What is the effect on the overall economy and local culture if a shift is made from production of products from the public land to other emphasis areas?

How will the management plan consider decisions affecting agriculture that have a far-reaching impact?

Recreational developments, including visitor services and interpretive facilities, should be placed in gateway communities.

An economic analysis should be prepared of any extractive development and ground-disturbing activities.

An economic analysis should be prepared of any extractive development and ground-disturbing activities and should disclose to what degree the activities are below cost.

Preservation of the ranching culture is important.

APPENDIX D

Issues Considered but Not Further Analyzed

Current management, BLM policy, or administrative action can address some of the issues raised during the scoping process. Other issues are beyond the scope of the RMP and cannot be addressed. These issues are discussed below.

How will Monument resources be managed to maintain the area as a Class 1 airshed?

The State of Montana has delegated responsibility for management of the Clean Air Act, including classification of airsheds. The Monument is within airshed 9 and is a Class 2 airshed. The BLM will comply with national and state air quality standards.

How will management consider water quality and water rights on the Missouri River and its tributaries?

Surface and groundwater quality must be maintained to meet or exceed state and federal water quality standards. Montana water laws govern water rights. BLM policy and current laws address this issue.

Livestock are adversely impacting riparian and upland health.

The Proclamation affirms that "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument." The Standards for Rangeland Health and Guidelines for Livestock Grazing Management were established in 1997, and apply to all BLM land in northcentral Montana, including the Monument. Standard No. 1 established the indicators for healthy upland areas that contribute to proper functioning conditions in the uplands. Standard No. 2 established the indicators for healthy riparian areas that contribute to proper functioning conditions in riparian and wetland areas. In addition, grazing management guidelines specifically emphasize management practices that would maintain and/or improve rangeland health.

The watershed planning and grazing permit/lease renewal process assessed the impact of livestock grazing on the Standards for Rangeland Health, as well as other resource management goals. Part of the assessment process included reviewing allotments for their suitability for grazing, stocking levels, seasons of use, duration of grazing and other grazing management

practices and their impact on other resources. When livestock grazing was identified as a cause for not meeting standards or resource management goals, corrective actions were identified. The results of standards assessments and the corresponding corrective actions can be found in the watershed plans. Not all implementation actions occur immediately because of funding and resources available. Through ongoing monitoring and adaptive management strategies, implementation is continuing. Grazing management is discussed further in Chapters 2 and 3 under Vegetation – Native Plants and Vegetation – Riparian.

Will forage be properly allocated between livestock and wildlife?

Forage allocation to various uses in the Monument area was analyzed in the Missouri Breaks EIS in 1979. Since 1979, the West HiLine RMP and Judith-Valley-Phillips RMP brought forward these allocations. All activity planning and implementation efforts stipulate that ongoing monitoring will be used as a basis to adjust allocations, and the adjustments are made on a periodic basis as the need has been (and will be) apparent. (Activity planning includes watershed plans, allotment management plans, habitat management plans, etc.)

Range improvements must be maintained or upland health will suffer. Lack of access to range improvements will make management of grazing difficult.

Maintenance of and access to range improvements is an ongoing process consistent with completed watershed plans and BLM policy.

Livestock grazing is negatively impacting wildlife habitat.

When livestock grazing is identified as the cause of not meeting standards (particularly Standard #5 dealing with habitat), existing regulations and policy are in place to make necessary adjustments. All activity planning and implementation efforts stipulate that ongoing monitoring will be used as a basis to adjust allocations, and the adjustments are made on a periodic basis as the need has been (and will be) apparent. (Activity planning includes watershed plans, allotment management plans, habitat management plans, etc.)

To what extent will mining be allowed in the Monument?

If mining claims are tested and found to be valid, the claimants would be considered to have valid and existing rights. If mining claims are tested and found to be invalid, the claims would be terminated. Per the Proclamation, no new mining claims could be accepted.

To what extent should the BLM administer filming permits?

The administration of filming permits is addressed by current policy (IM MT-098-063).

How does the BLM decide what constitutes a road?

A road is a linear route segment that can be created by the passage of vehicles (two-track); constructed; improved; or maintained for motorized travel. Roads are classified as collector roads, local roads, or resource roads as defined in BLM Manual 9113. This issue is currently addressed by BLM policy.

Management of the Monument needs to recognize the need for adequate funding, including enforcement and interpretation activities. Does the BLM have the capability to implement a management plan for the Monument?

Decisions from an RMP would be implemented over a period of years depending on budget and staff availability. Enforcement and education to protect the values of the Monument will be part of this implementation. Funding levels affect the timing and implementation of management actions and project proposals, but do not affect the decisions made in an RMP. In Fiscal Year 2005, the Monument was managed with a staff of 21 individuals, which includes five seasonal employees, along with support from seven individuals from other BLM offices (this does not include other support services such as procurement, engineering, information resources, fire, etc.). This issue is addressed by BLM policy and budgets during implementation.

WSAs should be protected under the non-impairment mandate and the RMP should establish a program for doing so. WSAs should be managed as wilderness until such time that Congress acts; this includes managing and maintaining WSAs and other potential roadless areas in a pristine condition.

The WSAs within the Monument will be managed based on the Missouri Breaks Wilderness Suitability Study/EIS and consistent with Interim Management Policy and Guidelines for Lands under Wilderness

Review (BLM Manual H-8550-1). This issue is currently addressed by BLM policy.

The RMP should outline a specific schedule and timeline for reinventorying all Monument roadless areas with wilderness character, especially Bullwhacker Coulee.

A formal wilderness inventory of this area was completed in 1979 and 1980. The BLM has no information to suggest that this inventory needs revision. The public does have the opportunity to help provide information to the BLM concerning wilderness characteristics and inventory.

How will fires be managed within the Monument, especially those that threaten land or property outside the Monument or private land intermingled with the Monument?

The BLM will fully suppress any fires occurring on BLM land that threaten private land or BLM structures/improvements. This issue is addressed by BLM policy.

How are emergency services going to be provided on the river and how will this affect the local communities that may help provide these services? (Local communities should be reimbursed for the services they provide.) Local community assistance is needed due to increased fire protection workload from increased visitor use. Insufficient dialog exists between the BLM and communities in the Monument area related to fire protection and emergency services.

The Fergus, Chouteau, Blaine and Phillips County Sheriff's Departments conduct emergency services in the Monument. The BLM assists as requested with available resources. Emergency services are guided by BLM policy and administrative action.

The process of management should be open, involve the public, and include compromise. Management of the Monument must recognize local and community participation, the scientific community, and all Americans.

Preparation of the RMP will be consistent with the Federal Land Policy and Management Act (FLPMA) and NEPA, which provide for public involvement. This issue is addressed by law and BLM policy.

Management of the Monument must consider the baseline conditions in the area and the cumulative impacts occurring on adjacent private and BLM land.

The current resource conditions in the Monument and the analysis of effects are guided by the regulations for

implementing NEPA. The RMP/EIS will be consistent with current law, regulations, and policy.

Management of the Monument must consider the requirements under existing laws and regulations.

Preparation of the RMP will be consistent with FLPMA and NEPA. This issue is addressed by law, regulations, and BLM policy.

What type of visitors are we to expect?

Management of the Monument will consider what range of recreational opportunities should be provided to meet the wide variety of public demands. The BLM has no control over who may want to visit the Monument.

The Breaks is a place away from the noise and chaos of city/ everyday life. Americans need places where they can restore their sanity and this is one of those places. Keep in mind the long-term focus. Society's preferences and needs come and go but only the land can endure.

The management plan will look at the social conditions in the area along with the opportunities provided by the Monument consistent with the Proclamation and how those opportunities affect social wellbeing. This issue is addressed by BLM policy.

How will the quality of the river experience be maintained or improved relative to supersonic flights and sonic booms?

The Monument is located beneath the Hays Military Operations Area (MOA). The Hays MOA overlies a large portion of northcentral Montana at altitudes ranging from 300 feet above ground level, up to 18,000 feet above mean sea level. The Federal Aviation Administration has the responsibility to plan, manage, and control the structure and use of all airspace over the United States, including the Hays MOA. This issue is beyond the scope of the RMP since the BLM has no jurisdiction or authority for this MOA.

Hunting should continue to be used as a management tool and the State of Montana shall retain the authority and responsibility of managing fish and game within the Monument. How will current hunting and trapping uses of BLM land within the Monument be managed in the future?

The Proclamation designating the Monument did not "... enlarge or diminish the jurisdiction of the State of Montana with respect to fish and wildlife management." This issue is beyond the scope of the RMP since the BLM does not have the jurisdiction or authority for managing fish and wildlife within the Monument.

What will be the effect on the livestock industry if the recreating public is granted exclusive use of the river corridor?

The Proclamation designating the Monument provided that the area be managed "... pursuant to applicable legal authorities, including the National Wild and Scenic Rivers Act ..." and that "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases ... shall continue to apply." The Upper Missouri was designated a Wild and Scenic River in 1976 with a multiple use mandate, which means the BLM must recognize all the resource uses present (PL 94-486). This issue is beyond the scope of the RMP since the BLM cannot grant exclusive use of the river to the recreating public under PL 94-486 or the Proclamation.

How will private property be protected from the impact of campers?

The Proclamation designating the Monument applies to "all lands and interests in lands owned or controlled by the United States" This issue is beyond the scope of the RMP since management of the Monument does not apply to private property.

How should the communities near the Monument prosper with management of the Monument?

The BLM has a strong commitment to work with communities in managing the Monument, including activities and needs such as planning, transportation, emergency services, law enforcement, infrastructure, and tourism. Throughout the RMP, opportunities to work with private landowners and surrounding communities have been identified and we can assess effects to communities from our activities. However, preparation of specific community economic development plans is beyond the scope of this RMP.

How will the Monument be managed to restore the area to the conditions of the time of Lewis and Clark?

The Proclamation designating the Monument provided that the area be managed "... pursuant to applicable legal authorities, including the National Wild and Scenic Rivers Act ..." and the "establishment of the Monument is subject to valid existing rights." The Upper Missouri was designated a Wild and Scenic River in 1976 with a multiple use mandate, which means the BLM must recognize all the resource uses present (PL 94-486). This issue is beyond the scope of the RMP since the BLM must manage the river under a multiple use mandate as required by PL 94-486 and manage the Monument subject to valid existing rights.

The river's flow needs to correspond to historic floods and lows. The Army Corps of Engineers and Bureau of Reclamation should emulate historic flows via Canyon Ferry Dam and Tiber Dam on the Missouri and Marias Rivers.

This issue is beyond the scope of this RMP since the BLM has no jurisdiction or authority over water flows on the Missouri and Marias Rivers.

Leave private land out of the Monument and let landowners choose for themselves whether to have their land included within the boundaries.

The Proclamation designating the Monument applies to "all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map" The BLM has no jurisdiction over private land.

What is the BLM's authority to regulate recreational activities on the Upper Missouri National Wild and Scenic River, including recreation user fees and motorized watercraft restrictions?

FLPMA gives the BLM general authority to regulate and enforce the occupancy and use of the public lands through permits and fees (43 USC § 1732 (b), 1733 (1994)). Through 2004, the Land and Water Conservation Fund Act of 1964 empowered the BLM to issue

Special Recreation Permits (SRPs) according to its own procedures and fee schedules (16 USC § 4601-6a(c) (1994)). These SRPs help manage group activities, recreation events, motorized recreation vehicle activities, and other special recreation uses in accordance with procedures at fees established by the agency involved.

The Federal Lands Recreation Enhancement Act (FLREA) of 2004 gives the Secretary of the Interior authority to issue SRPs and charge fees connected to issuing those permits. This authority began in 2005, and applies to group activities, recreation events and motorized vehicle use activities on federal recreational lands and waters. This act replaces the BLM authority to charge fees under the Land and Water Conservation Fund Act.

Bureau regulations (43 CFR 2930) require SRPs for all commercial uses on the public lands and waters that the BLM manages, including permits for any uses in special areas such as wild and scenic rivers. The BLM can manage, require and enforce permits and fees within a wild and scenic river to protect the river values, even if the river users do not set foot upon BLM land (63 IBLA at 381-82). Management activities and enforcement are designed to protect public lands, property, users, occupants, resources, and activities on or having a clear potential to affect lands adjacent to BLM land or related waters.

APPENDIX E

Vision and Management Goals

Vision

The BLM will manage the Monument in a manner that maintains and protects its biological, geological, visual and historic objects and preserves its remote and scenic character. The management plan will incorporate the Proclamation, multiple use, and existing laws, while recognizing valid existing rights and authorizations and providing diverse recreational opportunities.

Management Goals

A number of goals will guide the development of alternatives for the resource management plan. These goals are the result of information provided through public scoping, existing laws and regulations, the Proclamation, and the planning team.

Goal 1: Manage visitor use and services on these BLM lands in a manner that protects Monument values and resources. This goal would allow the BLM to:

Preserve historic and cultural values and sites by enhancing public awareness or protection of the resources;

Protect and preserve the wild and scenic character of the river and preserve or enhance the primitive characteristics of the wilderness study areas;

Protect the cultural landscape (viewshed) and the visual features in the landscape that are identified in the Proclamation;

Protect significant paleontological resources;

Inform visitors of the differences between private property and BLM land;

Control wildland fire safely, efficiently and with minimal impact to resource values; and

Provide for visitor health and safety at levels appropriate to the risks normally expected when engaged in recreational activities in the Monument.

Goal 2: Manage these BLM lands in a multiple use manner consistent with the Proclamation and all current law and policy.

Goal 3: Manage legal and physical access to and within the Monument to provide opportunities for diverse activities. This goal would allow the BLM to:

Provide access to state and federal land while protecting the features of the Monument;

Provide access for diverse recreation opportunities;

Allow access for emergency services (firefighting, search and rescue, etc.);

Provide reasonable access for private landowners; and

Allow access for administrative needs and authorized uses of industry and government agencies.

Goal 4: Manage these BLM lands for a variety of sustainable visitor experiences in mostly primitive and natural landscapes. This goal would allow the BLM to:

Provide for dispersed and developed recreation opportunities and ensure visual quality characteristics reflect a predominantly primitive or natural landscape; and

Provide for a diversity of visitor experiences.

Goal 5: Manage these BLM lands in a manner that provides a healthy ecosystem supporting plant and animal species and achieves a sustainable variation of native vegetation communities. This goal would allow the BLM to:

Manage, enhance and protect the fish and wildlife habitat and special status species;

Achieve, or make significant progress toward, proper functioning condition in riparian areas;

Manage for healthy vegetation communities that provide for a wide variety of long-term benefits such as aesthetics, wildlife, recreation, livestock grazing, etc;

Maintain or re-establish the natural influence of fire on vegetation communities;

Control, contain and, if possible, eradicate invasive plants;

Maintain and/or improve the existing hydrologic systems in the Monument; and

Maintain the air quality in the Monument.

Goal 6: Manage these BLM lands in a manner that provides current and future generations with the social and economic benefits compatible with the Proclamation. This goal would allow the BLM to:

Provide a diverse array of stable economic opportunities in an environmentally sound manner, including the exploration and development of existing oil and gas leases;

Provide quality opportunities to meet the demands of various publics for all resources, and a diverse array of activities that result in social benefits while minimizing negative social effects; and

Minimize the risk of catastrophic fire within the Monument and communities adjacent to the Monument.

Goal 7: Manage these BLM lands in a manner that involves the public and collaborating agencies (local, state, federal and tribal) at every opportunity. This goal would allow the BLM to:

Continue recognizing distinct local values (local communities, users, and private landowners) while continuing to recognize national interests.

APPENDIX F

Federal and Montana Ambient Air Quality Standards

<i>Pollutant</i>	<i>Time Period</i>	<i>Federal (NAAQS)</i>	<i>Montana (MAAQS)</i>	<i>Standard Type</i>
Carbon Monoxide	Hourly Average	35 ppm	23 ppm	Primary
	8-Hour Average	9 ppm	9 ppm	Primary
Fluoride in Forage	Monthly Average	--	50 µg/g	--
	Grazing Season	--	35 µg/g	--
Hydrogen Sulfide	Hourly Average	--	0.05 ppm	--
Lead	90-Day Average	--	1.5 µg/m	--
	Quarterly Average	1.5 µg/m	--	Primary and Secondary
Nitrogen Dioxide	Hourly Average	--	0.30 ppm	--
	Annual Average	0.053 ppm	0.05 ppm	Primary and Secondary
Ozone	Hourly Average	0.12 ppm	0.10 ppm	Primary and Secondary
	8-Hour Average	0.08 ppm	--	Primary and Secondary
Particulate Matter (PM ₁₀)	24-Hour Average	150 µg/m	150 µg/m	Primary and Secondary
	Annual Average	50 µg/m	50 µg/m	Primary and Secondary
Particulate Matter (PM _{2.5})	24-Hour Average	65 µg/m	--	Primary and Secondary
	Annual Average	15 µg/m	--	Primary and Secondary
Settleable Particulate	30-Day Average	--	10 g/m	--
Sulfur Dioxide	Hourly Average	--	0.50 ppm	--
	3-Hour Average	0.50 ppm	--	Secondary
	24-Hour Average	0.14 ppm	0.10 ppm	Primary
	Annual Average	0.03 ppm	0.02 ppm	Primary
Visibility	Annual Average	--	3 x 10 ⁻⁵ /m	--

APPENDIX G

Best Management Practices

The following Best Management Practices (BMPs) provide for the protection of wildlife, soils, vegetation, water quality and visual resources. While the BMPs below are listed under specific categories, the applicable BMPs would vary with the location of a project and the resource issues in that area. The best practice(s) should be used to meet site-specific needs.

Range Improvements

1. Potential reservoirs and pit sites should be core drilled to determine if gravel lenses are below the structure.
2. All proposed range improvements will be designed to limit erosion, saline seeps, salt accumulations and rapid sedimentation.
3. Topsoil and suitable subsoil will be identified and stockpiled during all soil excavation activities and will be used to rehabilitate the area when the project is completed. Exceptions to this may be granted, based on a site-specific evaluation. Disturbed areas will be monitored for noxious plant infestation and control measures will be implemented as needed.

Forest Products

1. Harvest Design
 - a. The following should be considered during the development of timber harvest systems:
 - 1) Soil characteristics and erosion hazard identification.
 - 2) Rainfall characteristics.
 - 3) Topography.
 - 4) Plant cover (forest type understory, silvics).
 - 5) Critical components (aspect, water courses, landform, etc.).
 - 6) Silvicultural objectives.
 - 7) Existing watershed condition.
 - 8) Potential effects of multiple resource management activity on beneficial water uses.
- 9) Compliance with the Montana Water Quality Act, Public Water Supply Act, and state water quality standards. Manage community and non-community public water supply watersheds to comply with state water quality standards. The Public Water Supply Act (75-6-101-MCA) requires approval of plans and specifications for roads and other disturbances from the Montana Water Quality Bureau for activities planned for public water supply watersheds.
 - b. Leave streamside management zones on both sides of perennial streams and intermittent streams with a well-defined channel. This zone provides shading, soil stabilization, and sediment and water filtering effects.
 - c. Use the logging system that best fits the topography, soil type, and season, while minimizing soil disturbance and economically accomplishing silvicultural objectives. Consider the potential for erosion prior to tractor skidding on slopes greater than 40%.
 - d. Skid trail locations require special considerations for slopes steeper than 15% or greater.
 - e. Design and locate skid trails and skidding operations to minimize soil disturbance. The use of designated skid trails is one means of limiting site disturbance and soil compaction.
 - f. Locate skid trails to avoid concentrating runoff and provide breaks in grade.
 - g. Locate skid trails and landings away from natural drainage systems and divert runoff to stable areas.
 - h. Use the economically feasible yarding system which will minimize road densities.
 - i. Roads and trails will be built or upgraded with due regard for environmental considerations. Cut-and-fill slopes should be no steeper than 3:1 where feasible. This will promote quick revegetation and soil stabilization and discourage invasion by weeds. The type of terrain (flat to steep) will be a major factor in applying the 3:1 guideline. The intent is to provide a stable seedbed where practical. After access roads are no longer needed, they

will be contoured to a natural appearance and seeded. This could apply to any road within the Monument.

2. Harvesting Activities

- a. Mechanical thinning/harvesting should be conducted when the ground is dry, frozen, or snow covered.
- b. Avoid falling trees or leaving slash in streams or water bodies.
- c. Limb or top trees where debris cannot fall or be dragged into the stream.
- d. A 124 or 310 permit (Natural Streambed and Land Preservation Act of 1975) is required for ground skidding through any perennial stream.
- e. Minimize operation of wheeled or tracked equipment within the streamside management zones of stream courses designated for protection. Do not operate equipment on stream banks.
- f. End-line logs out of streamside areas when ground skidding systems are employed.
- g. Fully suspend logs when line skidding across a stream and immediately above streambanks.
- h. Remove debris entering any stream concurrently with the yarding operation and before removal of equipment from the project site. Accomplish debris removal so the natural streambed conditions are not disturbed. Leave naturally occurring downfall material which provides fish habitat.
- i. Avoid equipment operation in wetlands, bogs, and wet meadows except on designated roads. Use end-lining and directional falling for harvest operations in these areas.
- j. Repair damage to a stream course caused by logging operations, including damage to banks and channel, to as reasonable a condition as possible without causing additional damage to the stream channel.
- k. Tractor skid when compaction, displacement, and erosion will be minimized.
- l. Install necessary water bars on tractor skid trails prior to expected periods of heavy runoff. Appropriate spacing between bars is determined by the soil type and slope of the skid trail. Timely implementation is important.

- m. Construct draingate structures on skid trails to prevent water and sediment from being channeled directly into stream courses.

- n. Construct water bars and/or seed skid trails and landings, where natural revegetation is inadequate to prevent accelerated erosion, before the next growing season. A light ground cover of slash or straw will help retard erosion.
- o. For south and southwest aspects, light slash should be left on the site as much as possible to minimize water erosion.
- p. Avoid skidding with the blade lowered.
- q. Suspend the head end of the log whenever possible.
- r. Minimize the size and number of landings to that necessary for safe, economical operation.
- s. Avoid decking logs within the high water mark of any stream.
- t. Provide suitable delivery, storage, and disposal for all fuels, shop debris, waste oil, etc.

3. Slash Treatment and Site Preparation

- a. Rapid reforestation of harvested areas is encouraged to reestablish protective vegetation.
- b. Use brush blades on cats when piling slash. Avoid use of dozers with angle blades. Site preparation equipment producing irregular surfaces is preferred. Care should be taken to avoid severe disruption of the surface soil horizon.
- c. Minimize or eliminate elongated exposure of soils up and down the slope during mechanical scarification.
- d. Scarify the soil to the extent necessary to meet the reforestation objective of the site. Low slash and small brush should be left to slow surface runoff, return soil nutrients and provide shade for seedlings.
- e. Carry out brush piling and scarification when soils are dry enough to minimize compaction and displacement.
- f. Carry out scarification on steep slopes in a manner that minimizes erosion. Broadcast burning and/or herbicide application is a preferred means for site preparation on slopes greater than 40%.

- g. Maintain streamside management zones between site preparation or slash disposal areas and streams.
- h. Scarify landings and temporary roads on completion of use.
- i. Do not apply chemical vegetation control treatment to water bodies. Provide suitable buffer strips between chemical mixing and application areas and all water bodies.
- j. Apply pesticide and dispose of containers according to label and Environmental Protection Agency registration directions. Make contingency plans to follow in case of accidental spills. Mixing and disposal of chemicals should be supervised by a licensed applicator.
- k. Limit water quality impacts of prescribed fire: construct water bars in firelines; reduce fuel loadings in drainage channels; maintain the streamside management zone; avoid intense fires unless needed to meet silvicultural goals.
- l. Slash burning should be done with a cooler controlled fire.

Fire

1. Fire Suppression

- a. Minimize watershed damage from fire suppression by avoiding heavy equipment operation on fragile soils and steep slopes.
- b. Stabilize suppression damage where erosion potential has increased. Treatments include installing water bars, seeding, planting, fertilizing, spreading slash or mulch on bare soil, repairing road drainage facilities, and clearing stream channels of debris.
- c. Conduct burn area surveys where necessary to assess the need for rehabilitation of watershed damage. Rehabilitation measures may include: seeding, fertilizing, fencing, clearing debris from stream channels, constructing trash racks, channel stabilization structures and debris retention structures.
- d. Consider the impacts of sewage disposal when establishing locations for fire camps, logging camps, or other similar facilities.

2. Prescribed Fire

- a. Sites that are limestone parent material on south or southwest aspects should be burned in a mosaic pattern with a cool fire to minimize the potential for water erosion.

Natural Gas Operations

1. Location

- a. Work with the operator to choose the best site access and facility location to mitigate for visual impacts.
- b. Where practical, avoid construction in highly scenic areas.
- c. Ridgetop facilities are highly visible from great distances because they are skylined. Roads, on the other hand, may be less visible if located along ridgetops, but if they are located on the ridge face they can be highly visible because of increased cut, fill and sidecast material.
- d. Move facilities further from key observation points to reduce their apparent size. This may necessitate moving facilities from the shoulder of roads and trails, and placing them in the background of the view.
- e. Avoid locating facilities near "prominent" features.
- f. Use natural or artificial features such as topography, vegetation, or an artificial berm to help screen facilities. Locate facilities in a swale, around the bend, behind a ridge, or create a natural looking, vegetated berm.
- g. Locate and construct roads and other linear facilities to follow the contour of the landform or mimic lines in the vegetation. Avoid a straight road that will draw the viewer's eye and attention straight toward the production facilities at the end of the road.
- h. Where practical, use existing roads. When a suitable existing road is not available, construct a suitable road, but eliminate the redundant or obsolete roads.
- i. Do not reuse existing roads just because they are preexisting and you are hesitant to disturb new areas. Choose the best location for the road and its anticipated uses. Consider safety, anticipated

traffic load, and maintenance requirements as well as visual and habitat needs.

- j. Avoid locating roads and pipelines on steep slopes. Follow the contours of the land to reduce earthwork/disturbance.
- k. Avoid locating well pads on steep slopes. Well pads on steep slopes can create large cut and fill slopes which are more expensive to reclaim and are highly visible from long distances. If you must locate on a steep slope, avoid the sidecast of materials.
- l. Construct the minimum road necessary. Consider using two-track roads for exploration wells that could become dry holes or production wells with very low vehicle use during production. The BLM 9113 Roads Manual states, "Bureau roads must be designed to an appropriate standard no higher than necessary to accommodate their intended functions..." Consider average daily traffic load, vehicle size, soils, topography, weather, season of use, safety, etc.

2. Operations

- a. Consider drilling multiple wells from a single well pad to reduce the footprint of oil and gas activity on wildlife habitat.
- b. Remote electronic monitoring of wells and related production equipment can reduce the number of maintenance and inspection truck trips made during critical time periods for wildlife and result in less wildlife disturbance.
- c. Bury power lines in or adjacent to the road to eliminate cross-country vegetation clearing and resulting habitat fragmentation.
- d. Noise can deter wildlife from using an area. Use noise reduction mufflers to comply with noise standards. Also, consider using earthen berms, walls, sheds, and/or distance to reduce sound levels in important habitats.
- e. Reduce vehicle traffic in important wildlife areas and during critical wildlife use periods. Consider:
 - 1) Seasonal restriction of public vehicular access in new development areas such as dead-ends, well access roads or designated portions of the field.
 - 2) Operator-enforced speed limits during critical seasons.

- 3) Use of shuttle vans and buses to transport drilling rig workers and field service personnel.

- f. Cover all production-related pits and tanks to exclude wildlife, regardless of pit or tank size. Migratory birds can drown in small volumes of water and other fluids. Violations of the Migratory Bird Treaty Act can result in substantial penalties.
- g. Minimize the footprint of energy development. To reduce wildlife habitat fragmentation, loss, and degradation, consider lower class roads, smaller pads, and interim reclamation.

3. Reclamation

- a. Interim reclamation is short-term reclamation that occurs as the well is beginning initial production of oil and/or gas. It includes partially reshaping and revegetating roads and well pads to reduce the amount of bare ground created during construction and drilling activity.
- b. To minimize habitat loss and fragmentation, re-establish as much habitat as possible by maximizing the area reclaimed during well production operations. In many cases, this "interim" reclamation can cover nearly the entire site.
- c. Limit activities to only the area that is necessary.
- d. Interim reclamation should begin shortly after construction or establishing oil or gas production on the site. Steps include: (1) Fully recontour unneeded areas to the original contour or a contour that blends with the surrounding topography; (2) Respread topsoil over the entire pad; and (3) Revegetate to re-establish habitat.
- e. Seed with the proper species, varieties, and amounts of seed. The use of native species is preferred. Consider adding shrubs and forbs to the seed mixture, where appropriate, to re-establish habitat.
- f. Borrow ditches should be covered with topsoil and seeded. Consider seeding the road surface for low use roads. Forage and habitat is partially restored.
- g. When well production ends, begin final reclamation. Ensure the site is recontoured, stable, and fully revegetated.

Roads

1. Location

- a. Minimize the number of roads constructed in a watershed through comprehensive road planning, recognizing intermingled ownership and foreseeable future uses. Use existing roads where practical.
- b. Fit the road to the topography. Locate roads on natural benches and stable soil types to minimize the area of road disturbance.
- c. Locate roads on well-drained soils and rock formations that tend to dip into the slope. Avoid slide-prone areas characterized by seeps, steep slopes, highly weathered bedrock, clay beds, concave slopes, hummocky topography, and rock layers that dip parallel to the slope.
- d. Avoid high erosion hazard sites, such as steep, narrow canyons, slide areas, slumps, swamps, wet meadows, or natural drainage channels. Where there is potential for material to enter a stream, obtain approval of the Conservation District and/or the Water Quality Bureau under applicable laws (i.e., 124 or 310 permit).
- e. Locate roads a safe distance from streams when roads are running parallel to stream channels. Provide an adequate streamside management zone in order to catch sediment and prevent its entry in to the stream.
- f. Minimize the number of stream crossings.
- g. Cross streams at right angles to the main channel if practical.
- h. Choose a stable stream crossing site and adjust the road grade to reach the site if possible.
- i. Avoid unimproved stream crossings. Where a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.
- j. A 124 or 310 permit (Natural Streambed and Land Preservation Act of 1975) is required before disturbance is allowed within the area between the normal high water marks of perennial streams.
- k. Avoid long, sustained, steep road grades. Where unavoidable, establish effective water bars and sediment diversions.
- l. Vary road grades to reduce concentrated flow in road drainage ditches and culverts to reduce erosion on cut and fill slopes and road surface.

- m. When locating roads, provide access to suitable log landing areas (flatter, well-drained) in order to reduce soil disturbance.

2. Design

- a. Incorporate preventive action into transportation plans. Minimize disturbance. Use available information to help identify erodible soils, unstable areas, and road surface materials.
- b. Plan roads to the minimum standard necessary to accommodate anticipated use and equipment. When using existing roads, avoid reconstruction unless absolutely necessary. The need for higher standard roads can be alleviated through better road use management.
- c. Construct cut and fill slopes at stable angles.
- d. Use plans that balance cuts and fills or use full bench construction (no fill slope) where stable fill construction is not possible. Haul excess material to a safe disposal site and include these waste areas in soil stabilization planning for the road.
- e. Contour and roll road grades for minimal disruption of drainage patterns.

3. Drainage

- a. Design water crossing structures at points where it is necessary to cross stream courses. Provide for adequate fish passage, minimum impact on water quality, and at a minimum the 25-year frequency runoff. A 124 or 310 permit is required for perennial stream crossings.
- b. Install culverts to conform to the natural stream bed and slope. Place culverts slightly below normal stream grade to avoid culvert outfall barriers.
- c. Design culvert installations to prevent erosion of fill. Compact the fill material to prevent seepage and failure. Armor the inlet and/or outlet with rock or other suitable material where needed.
- d. Provide adequate drainage for the road surface. Use outsloped roads, insloped roads with ditches and cross drains or drain dips. Dips should be constructed deep enough into the subgrade that traffic will not obliterate them.
- e. Plan ditch gradients steep enough, generally greater than 2%, but less than 8%, to prevent sediment deposition and ditch erosion. Gradient depends on parent material.

- f. Design the spacing of road drainage facilities based on geologic type, soil erosion class, and road grade.
- g. Where possible, install ditch relief culverts at the gradient of the original ground slope, otherwise anchor downspouts to carry water safely across the fill slope.
- h. Skew relief culverts 20 to 30 degrees toward the inflow from the ditch to provide better inlet efficiency.
- i. Provide energy dissipaters where necessary at the downstream end of ditch relief culverts to reduce the erosion energy of the emerging water.
- j. Protect the upstream end of cross drain culverts from plugging with sediment and debris. Prevent downslope movement of sediment by using sediment catch basins, drop inlets, changes in road grade, headwalls, and recessed cut slopes.
- k. Install culverts to assure protection from crushing due to traffic. Use 1-foot minimum cover for corrugated metal pipes 15 to 36 inches in diameter, and a cover of one-third diameter for larger corrugated metal pipes.
- l. Use corrugated metal pipes with a minimum diameter of 15 inches to avoid plugging.
- m. Install road drainage facilities above stream crossings so water may be routed through a streamside management zone before entering a stream.

4. Construction

- a. Place debris, overburden, and other waste materials associated with construction activities in a location to avoid entry into streams.
- b. Minimize stream channel disturbances and related sediment problems during construction of roads and installation of stream crossing structures. Do not place easily eroded material into live streams. Remove material stockpiled on a floodplain before rising water reaches the stockpile. Locate bypass roads to have minimal disturbance on the stream course. Limit construction activity to specific times to protect beneficial water uses.
- c. Minimize earth moving activities when soils appear excessively wet. Do not disturb roadside vegetation more than necessary to maintain slope stability and to serve traffic needs.

- d. Clear all vegetative material before constructing the fill portion of the road prism.
- e. On potentially erodable fill slopes, windrow slash at the toe of the fill slopes to trap sediment, particularly near stream crossings and on erodable fill slopes. Leave breaks for wildlife passage.
- f. Stabilize erodable, exposed soils by seeding, compacting, riprapping, benching, mulching, or other suitable means prior to spring or fall runoff.
- g. Keep slope stabilization, erosion and sediment control work as current as possible with road construction.
- h. Install drainage structures concurrent with construction of new roads and always prior to spring or fall runoff.
- i. Complete or stabilize road sections within the same operating season as construction is started, rather than leaving major road sections in a pioneer condition over a winter season.
- j. Minimize sediment production from borrow pits and gravel sources through proper location, development, and reclamation.

5. Maintenance

- a. Grade road surfaces as often as necessary to maintain a stable running surface and to retain the original surface drainage.
- b. Avoid cutting the toe of stable cut slopes when grading roads or pulling ditches.
- c. When plowing snow for winter timber harvest, provide breaks in the snow berm to allow road drainage.
- d. Keep erosion control measures functional through periodic inspection and maintenance.
- e. Haul all excess material removed by maintenance operations to safe disposal sites. Apply stabilization measures to these sites to prevent erosion. Avoid sidecasting material where it will enter a stream or be available to erode directly into a stream.
- f. Leave closed roads in a condition that provides adequate drainage without further maintenance.
- g. Restrict the use of roads during wet periods and the spring breakup period if damage to road drainage features resulting in increased sedimentation is likely to occur.

APPENDIX H

Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Standards for Rangeland Health

Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands. Achieving or making significant and measurable progress towards these functions and conditions is required of all uses of public rangelands. Historical data, when available, should be used when assessing progress towards these standards.

Standard #1: Uplands are in proper functioning condition.

This means that soils are stable and provide for capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e., litter, live and standing dead vegetation, microbiotic crusts, and rock/gravel) for identified ecological site(s) or soil-plant associations are appropriate for soil stability.

Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface scaling and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

Physical Environment

- erosional flow patterns
- surface litter
- soil movement by water and wind
- soil crusting and surface sealing
- compaction layer
- rills
- gullies
- cover amount
- cover distribution

Biotic Environment

- community richness
- community structure
- exotic plants
- plant status
- seed production
- recruitment
- nutrient cycle

Standard #2: Riparian and wetland areas are in proper functioning condition.

This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water and vegetation. Riparian-wetland areas are functioning properly when adequate vegetation, landform or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood water retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for native fish production, waterfowl breeding, and other uses appropriate for the area that will support greater species richness.

The riparian-wetland vegetation is a mosaic of species richness and community structure serving to control erosion, shade water, provide thermal protection, filter sediment, aid floodplain development, dissipate energy, delay flood water, and increase recharge of groundwater where appropriate to landform. The stream channels and flood plain dissipate energy of high water flows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform. Soils support appropriate riparian-wetland vegetation, allowing water movement, filtering sediment, and slowing ground water movement for later release. Stream channels are not entrenching beyond natural climatic variations and water levels maintain appropriate riparian-wetland species.

Riparian areas are defined as land directly influenced by permanent water. It has visible vegetation or physical

characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

Hydrologic

- floodplain inundated in relatively frequent events (1-3 years)
- amount of altered streambanks
- sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
- upland watershed not contributing to riparian degradation.

Erosion/Deposition

- floodplain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy
- point bars are being created and older point bars are being vegetated
- lateral stream movement is associated with natural sinuosity
- system is vertically stable
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Vegetation

- reproduction and diverse age class of vegetation
- diverse composition of vegetation
- species present indicate maintenance of riparian soil moisture characteristics
- streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events
- utilization of trees and shrubs
- riparian plants exhibit high vigor
- adequate vegetative cover present to protect banks and dissipate energy during high flows
- where appropriate, plant communities in the riparian area are an adequate source of woody debris

Standard #3: Water quality meets Montana State standards.

This means that surface and ground water on public lands fully support designated beneficial uses described in the Montana Water Quality Standards. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins
- others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

Standard #4: Air quality meets Montana State standards.

This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or non-point sources.

The BLM management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class area.

As indicated by:

Section 176(c) Clean Air Act which states that activities of all federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:

- cause or contribute to any violations of ambient air quality standards
- increase the frequency of any existing violations
- impede the State's progress in meeting their air quality goals

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

This means that native plant and animal communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant lifeforms. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for indigenous vegetation and animals is a priority. Ecological processes including hydrologic cycle, and energy flow, and plant succession are maintained and support healthy biotic populations. Plants are vigorous, biomass production is

near potential, and there is a diversity of plant and animal species characteristic of and appropriate to the site. The environment contains components necessary to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

- plants and animals are diverse, vigorous and reproducing satisfactorily; noxious weeds are absent or insignificant in the overall plant community
- spatial distribution of species is suitable to ensure reproductive capability and recovery
- a variety of age classes are present
- connectivity of habitat or presence of corridors prevents habitat fragmentation
- species richness (including plants, animals, insects and microbes) are represented
- plant communities in a variety of successional stages are represented across the landscape.

Guidelines for Livestock Grazing Management

Guidelines for management of herbivory (including domestic animals and wildlife) are preferred or advisable approaches to ensure that standards can be met or that significant progress can be made toward meeting the standard(s). Responsible state and federal wildlife agencies must be involved in this management if standards are to be achieved.

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats. In both riparian and upland habitats, these guidelines focus on establishing and maintaining proper functioning conditions. The application of these guidelines is dependent on individual management objectives. Desired future conditions in plant communities and streambank characteristics will be determined on a case-by-case basis.

Guideline #1: Grazing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time. This balance varies with location and management objectives, historic use, and natural fluctuations, but acceptable levels of use can be developed that are compatible with resource objectives.

Guideline #2: Manage grazing to maintain watershed vegetation, species richness, and floodplain function.

Maintain riparian vegetative cover and structure to trap and hold sediments during run-off events to build streambanks, recharge aquifers, and dissipate flood energy. Grazing management should promote deep-rooted herbaceous vegetation to enhance streambank stability. Where non-native species are contributing to proper functioning conditions, they are acceptable. Where potential for palatable woody shrub species (willows, dogwood, etc.) exists, promote their growth and expansion within riparian zones.

Guideline #3: Pastures and allotments will be managed based on their sensitivity and suitability for livestock grazing. Where determinations have not been previously documented, suitability for grazing will be determined by: topography, slope, distance from water, vegetation habitat types, and soil types must be considered when determining grazing suitability. Unsuitable areas should be excluded from grazing.

Guideline #4: Management strategies for livestock grazing will ensure that long-term resource capabilities can be sustained. End of season stubble heights, streambank moisture content, and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing strategy. These considerations are essential to achieving long-term vegetation or stream channel objectives and should be identified on a site-specific basis and used as terms and conditions.

Guideline #5: Grazing will be managed to promote desired plants and plant communities of various age classes, based on the rate and physiological conditions of plant growth. Management approaches will be identified on a site-specific basis and implemented through terms and conditions. Caution should be used to avoid early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling. Likewise, late summer and fall treatments in woody shrub communities should be monitored closely to avoid excessive utilization.

Guideline #6: The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

Guideline #7: Locate facilities (e.g., corrals, water developments) away from riparian-wetland areas.

Guideline #8: When provided, supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas so not to adversely impact streambank stability, riparian vegetation, water quality, or other sensitive areas (i.e., key wildlife wintering areas). Salt and minerals should be placed in upland sites to draw livestock away from watering areas or other sensitive areas and to contribute to more uniform grazing distribution.

Guideline #9: Noxious weed control is essential and should include: cooperative agreements, public education, and integrated pest management (mechanical, biological, chemical).

Guideline #10: Livestock management should utilize practices such as those referenced by the NRCS published prescribed grazing technical guide to maintain, restore or enhance water quality.

Guideline #11: Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

Guideline #12: Grazing management should maintain or promote the physical and biological conditions to sustain native populations and communities.

Guideline #13: Grazing management should give priority to native species. Non-native plant species should only be used in those situations where native seed is not readily available in sufficient quantities, where native plant species cannot maintain or achieve standards, or where non-native plant species provide an alternative for the management and protection of native rangelands.

Guideline #14: Allotment monitoring determines how ongoing management practices are affecting rangeland. To do so, the evaluations should be based on: 1. measurable management objectives; 2. permanent and/or repeatable monitoring locations; and; 3. short-term and long-term data.

APPENDIX I

Wild and Scenic River Eligibility and Suitability Report

Introduction

The Wild and Scenic Rivers Act (Act), (Pub. L. 90-542 as amended; 16 U.S.C. 1271-1287) established a method for providing federal protection for certain of our country's remaining free-flowing rivers, preserving them and their immediate environments for the use and enjoyment of present and future generations. Rivers are included in the National Wild and Scenic River System (NWSRS) so that they may benefit from the protective management and control of development for which the Act provides. The preamble of the Act states:

It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in freeflowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

The Bureau of Land Management (BLM) planning process for the Upper Missouri River Breaks National Monument involves conducting a wild and scenic river eligibility and suitability determination.

Section 5(d)(1) of the Act directs federal agencies to consider potential wild and scenic rivers in their land and water planning processes. To fulfill this requirement, the BLM inventories and evaluates rivers and streams when it develops a resource management plan (RMP) for BLM land in a specified area. The inventory is conducted during the data gathering stage of RMP development, and the study phase is done during the formulation of the Draft RMP and Final RMP.

The data collection was contracted to the University of Montana through the Cooperative Ecosystems Studies Unit (CESU) and conducted by R. Neil Moisey, Ph.D. and Hartwell Carson, Graduate Assistant. The BLM oversaw the study process with the objectives of delivering information on what outstanding remarkable values certain streams in the Monument might possess, and what factors do or do not make these streams suitable for management as wild

and scenic rivers. This information was then used by the planning team to make the final determination as to what streams were eligible and suitable.

Eligibility

The inventory process identifies rivers in the planning area, which may include a river, stream, creek, run, kill, rill, or small lake. Those responsible for conducting the inventories are directed to consider a wide variety of internal and external sources to identify potentially eligible rivers. The goal is to avoid overlooking river segments which have potential for inclusion in the national system river system. Once rivers are identified, the BLM applies standard criteria to determine eligibility. To be eligible, a river segment must be free-flowing and possess at least one river-related value considered outstandingly remarkable.

The initial screening of streams in the Monument was completed by the BLM. This effort identified intermittent or perennial streams based on a state list of all streams. Those streams were then plotted on a topographic map of the Monument to determine which streams were not included in the initial list. Those missing streams were then added to the study list (Table I.1).

The eligibility analysis consists of an examination of the river's hydrology, including any man-made alterations, and an inventory of its natural, cultural, and recreational resources. Free-flowing is flowing in natural condition without structural modification of the waterway; existence of minor structures is not an automatic ban. The determination that a river area contains ORVs is based on objective scientific analysis and research and reviewed by an interdisciplinary planning team.

In order to be assessed as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant at a comparative regional or national scale. Definitions of the words "unique" and "rare" indicate that such a value would be one that is a conspicuous example from among a number of similar values that are themselves uncommon or extraordinary. Typically, a "region" is defined on the scale of an administrative unit, a portion of a state, or an appropriately scaled physiographic or hydrologic unit. While the spectrum of resources that may be considered is broad, all values should be directly river-related. That is, they should: be located in the river or on its immediate shore lands (generally within 1/4 mile on either side of the river); contribute substantially to the functioning of the river ecosystem; and/or owe their location or existence to the presence of the river.

Table I.1
Streams on the Study List

<i>Stream Name</i>	<i>Location of Mouth</i>	<i>Total Miles</i>	<i>Miles on BLM Land</i>	<i>% Flowing on BLM Land</i>	<i>Free-Flowing</i>	<i>Outstanding Remarkable Values</i>
Armells Creek	21N, 22E, S24	13	5.5	42%	No	No remarkable values.
Fargo Coulee	21N, 23E, S18	10	9	90%	Yes	Some geologic and scenic values but not remarkable.
Sourdough Creek	21N, 22E, S28	6	6	100%	Yes	Some geologic and scenic values but not remarkable.
Two Calf Creek	22N, 23E, S28	17	15	88%	Yes	May contain scenic values but is a typical stream in the Monument. No remarkable values.
Reed Coulee	22N, 22E, S19	8	8	100%	Yes	Some geologic and scenic values but not remarkable.
South Fork Two Calf Creek	22N, 22E, S34	8.5	5	59%	Yes	May contain scenic values but is a typical stream in the Monument. No remarkable values.
Woodhawk Creek	23N, 22E, S19	17	16	94%	Yes	Fairly similar to Two Calf Creek and South Fork of Two Calf Creek, but has great exposure of Judith Formation like Dog Creek. Also crossed by the Nez Perce. The Nez Perce Trail crosses many streams, which does not make this stream remarkable. The exposure of the Judith Formation is not as unique as Dog Creek. No remarkable values.
Road Coulee	23N, 18E, S33	4	4	100%	Yes	No remarkable values.
Dog Creek	22N, 18E, S20	6.1	3.45	57%	Yes	Continuous 6-mile stretch of geologic formation. Best exposure of Judith formation. 800 vertical feet of drop on exposed section. This allows for the best potential for invertebrate paleontology, because of the exposed rocks. Dinosaur bones have been found but the area has not been thoroughly inventoried. Three sites were excavated in the 1850s, and some commercial collection. Outstanding remarkable values.
Judith River	23N, 16E, S26	14	0	0%	Yes ¹	Yes ¹ .
Evers Coulee	22N, 16E, S15	10	1	10%	Yes	No remarkable values.
Big Sag Coulee	22N, 16E, S22	9	0	0%	Yes	No remarkable values.
Mutton Coulee	22N, 16E, S27	5	4	80%	Yes	Has diatreme that cuts through site, but this type of igneous feature is common elsewhere such as Dark Butte. No remarkable values.

<i>Stream Name</i>	<i>Location of Mouth</i>	<i>Total Miles</i>	<i>Miles on BLM Land</i>	<i>% Flowing on BLM Land</i>	<i>Free-Flowing</i>	<i>Outstanding Remarkable Values</i>
79 Coulee	22N, 16E, S34	3	0.5	17%	Yes	No remarkable values.
Arrow Creek	19N, 12E, S31	19	1.5	8%	Yes	No remarkable values.
Flat Creek	22N, 15E, S6	2	0.5	25%	Yes	High concentration of tipi rings. Ferruginous hawk nest but not significant or remarkable.
Fahlgren Coulee	23N, 15E, S6	1.5	1	67%	Yes	Some geologic and scenic values but not remarkable.
Deadman Coulee	22N, 15E, S18	0.5	0	0%	Yes	Some geologic and scenic values but not remarkable.
Woodcock Coulee	21N, 15E, S30	2	0.7	35%	Yes	Some geologic and scenic values but not remarkable.
Spring Coulee	21N, 15E, S31	2.5	1.5	60%	Yes	Some geologic and scenic values but not remarkable.
Coffee Creek	21N, 15E, S31	5	1	20%	Yes	No remarkable values.
Sheep Shed Coulee	23N, 14E, S10	1.5	1	67%	Yes	Some unique geologic formations but no remarkable values.
Mud Spring Coulee	24N, 13E, S22	4	3.8	95%	Yes	Shale outcroppings but no remarkable values.
McLeish Coulee	24N, 13E, S27	2	1.5	75%	Yes	No remarkable values.
Sherry Coulee	24N, 13E, S16	3	1.5	50%	Yes	No remarkable values.
Pugsley Coulee	24N, 13E, S3	1.5	1	67%	Yes	No remarkable values.
Coal Mine Coulee	25N, 13E, S33	2.5	2	80%	Yes	Homesteading area. Some cultural and historic values but not remarkable.
Rattlesnake Coulee	25N, 13E, S15	0.2	0	0%	Yes	Some cultural values but not remarkable.
Cow Creek	23N, 22E, S6	23	8.9	31%	Yes	Some scenic and paleo values and the Nez Perce Trail. Eagle exposure, which is rare exposure in bottom and upper drainage of stream. Outstanding remarkable values.
Cabin Creek	24N, 22E, S20	10	8.5	85%	Yes	Within an ACEC, WSA, and some paleo values. Judith exposure. While a good example of the Judith formation, it is not unique. No remarkable values.
S. Creek	24N, 22E, S18	6	6	100%	Yes	No remarkable values.

<i>Stream Name</i>	<i>Location of Mouth</i>	<i>Total Miles</i>	<i>Miles on BLM Land</i>	<i>% Flowing on BLM Land</i>	<i>Free-Flowing</i>	<i>Outstanding Remarkable Values</i>
Left Coulee	25N, 21E, S27	9	9	100%	Yes	Within an ACEC, some scenic values, and an historic cabin, but no remarkable values.
Middle Coulee	25N, 21E, S27	5	4.5	90%	Yes	Within an ACEC, some scenic values, and an historic cabin, but no remarkable values.
Davidson Coulee	25N, 21E, S5	6	4.5	75%	Yes	Some scenic and historic values but not remarkable.
Suction Creek	26N, 21E, S21	1.5	0	0%	Yes	Nez Perce Trail but not significant or remarkable.
Al's Creek	26N, 21E, S17	8.5	0.5	6%	Yes	Scenic values and sage-grouse habitat, but only above the study area. Not typical breaks topography. No remarkable values.
Bullwhacker Creek	24N, 21E, S34	26	25.3	97%	Yes	Scenic and riparian values. Sage-grouse is present in the area, but this is not an outstanding remarkable example of their habitat.
Little Bullwhacker	24N, 21E, S34	7	6	86%	Yes	Bighorn sheep habitat and the Cable place on upper section has some unique history but no remarkable values.
Lion Coulee	24N, 20E, S15	9	3	33%	Yes	Some riparian values but not remarkable.
N.F. Lion Coulee	25N, 19E, S34	1.5	1.5	100%	Yes	Some riparian values but not remarkable.
W.F. Bullwhacker	25N, 20E, S20	6	6	100%	Yes	Some sage-grouse habitat but not remarkable.
Christenson Branch	25N, 20E, S18	4.5	4.5	100%	Yes	No remarkable values.
Williamson Coulee	23N, 20E, S6	10	7	70%	Yes	Bighorn sheep habitat and scenic values. Deep coulee. Kimberlitic diatreme, but not significant, not a lot different from other streams. No remarkable values.
Greasewood	23N, 20E, S2	7	4	56%	Yes	Bighorn sheep habitat and scenic values. Similar to Williamson Coulee. No remarkable values.
Coal Coulee	23N, 19E, S19	6	6	100%	Yes	Rough canyon with scenic values and mule deer habitat. Next to the Stafford Ferry. Rough access. Bighorn sheep. Not remarkable.

<i>Stream Name</i>	<i>Location of Mouth</i>	<i>Total Miles</i>	<i>Miles on BLM Land</i>	<i>% Flowing on BLM Land</i>	<i>Free-Flowing</i>	<i>Outstanding Remarkable Values</i>
Birch Creek	23N, 17E, S20	3	0.5	17%	Yes	Bighorn sheep habitat and prairie dog towns but not remarkable.
Chip Creek	23N, 16E, S27	1.5	0	0%	Yes	No remarkable values.
Dry Lake Coulee	23N, 16E, S33	4	2	50%	Yes	Scenic values and historic sites. Raptor values but not outstandingly remarkable. Deep, sharp coulee. Much of the coulee is in WSA. Not remarkable.
Pablo	23N, 14E, S12	7	4.5	64%	Yes	Historic sites and below white rocks. No remarkable values.
Dark Butte	23N, 14E, S4	4	3	75%	Yes	Scenic values and historic sites but not remarkable.
Winter Camp Coulee	24N, 13E, S3	1.5	0	0%	Yes	No remarkable values.
Butcher Knife Coulee	24N, 13E, S3	2	1	50%	Yes	No remarkable values.
Eagle Creek	25N, 13E, S16	2.2	0	0%	Yes	Recreation, historic sites, and pictographs. Has Eagle formation rare geology. Lewis and Clark campsite at the mouth. Old post office. Recreation values for hiking, canyons, camping and Lewis and Clark activities. Most used recreation site in the Monument. Outstanding remarkable values.
Sheep Coulee	25N, 13E, S15	0.3	0	0%	Yes	No remarkable values.
Cut Bank Coulee	25N, 13E, S9	1.5	0	0%	Yes	Within the White Cliffs area and historic sites, but not remarkable.
Crooked Coulee	26N, 13E, S30	0.7	0	0%	Yes	Within the White Cliffs area and historic sites, but not remarkable.
Lone Tree Coulee	26N, 13E, S19	1	0.2	20%	Yes	Within the White Cliffs area and historic sites, but not remarkable.

<i>Stream Name</i>	<i>Location of Mouth</i>	<i>Total Miles</i>	<i>Miles on BLM Land</i>	<i>% Flowing on BLM Land</i>	<i>Free-Flowing</i>	<i>Outstanding Remarkable Values</i>
Alkali Coulee	26N, 13E, S19	1	0	0%	Yes	Within the White Cliffs area and historic sites, but not remarkable.
Little Sandy Creek	26N, 12E, S12	4.5	0	0%	Yes	Recreation, easements, and cultural values. Eagle nest within 1/2 mile, close to 1/4 mile for designation (nest has moved a lot) but not considered remarkable since eagles inhabit much of the area. Big broad channel used to be Missouri River channel before glacial period, but not remarkable because of the common role glaciers played in shaping the landscape of the Monument. Cultural site over 10,000 years old of tipi rings, but there are many tipi rings through the Monument.
Coal Banks Coulee	26N, 12E, S6	0.8	0.8	100%	Yes	Recreation and historic bridge, but no remarkable values.
Antelope Creek	22N, 23E, S21	13	8.5	65%	Yes	No remarkable values.
Bull Creek	23N, 22E, S6	11	10.5	95%	Yes	Unique landscape and writings on sandstone, but not considered unique or remarkable.
Lind Coulee	23N, 22E, S2	12	11	92%	Yes	Within a WSA and unique landscape. No remarkable values.

¹ The Judith River was previously addressed in the Judith-Valley-Phillips RMP (BLM 1994a).

Outstandingly Remarkable Values (ORVs)

The following eligibility criteria are intended to set minimum thresholds to establish ORVs and are illustrative but not all-inclusive. The streams listed in Table I.1 were reviewed for free-flowing and ORVs.

Scenery: The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. When analyzing scenic values, additional factors – such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed – may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.

Recreation: Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. Visitors are willing to travel long distances to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing and boating.

Interpretive opportunities may be exceptional and attract, or have the potential to attract, visitors from outside the region of comparison.

The river may provide, or have the potential to provide, settings for national or regional usage or competitive events.

Geology: The stream, or the area within the stream corridor, contains one or more example of a geologic feature, process or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a “textbook” example, and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).

Fish: Fish values may be judged on the relative merits of either fish populations, habitat, or a combination of these stream-related conditions.

Populations: The stream is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or federal or state listed (or candidate) threatened, endangered or sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of “outstandingly remarkable.”

Habitat: The stream provides exceptionally high quality habitat for fish species indigenous to the region of comparison.

son. Of particular significance is habitat for wild stocks and/or federal or state listed (or candidate) threatened, endangered or sensitive species. Diversity of habitats is an important consideration and could, in itself, lead to a determination of “outstandingly remarkable.”

Wildlife: Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat or a combination of these conditions.

Populations: The stream, or area within the stream corridor, contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique, and/or populations of federal or state listed (or candidate) threatened, endangered or sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of “outstandingly remarkable.”

Habitat: The stream, or area within the stream corridor, provides exceptionally high quality habitat for wildlife of national or regional significance, and/or may provide unique habitat or a critical link in habitat conditions for federal or state listed (or candidate) threatened, endangered or sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitats is an important consideration and could, in itself, lead to a determination of “outstandingly remarkable.”

Prehistory: The stream, or area within the stream corridor, contains a site(s) where there is evidence of occupation or use by American Indians. Sites must have unique or rare characteristics or exceptional human interest value(s). Sites may have national or regional importance for interpreting prehistory; may be rare and represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; and/or may have been used by cultural groups for rare sacred purposes. Many such sites are listed on the National Register of Historic Places, which is administered by the National Park Service.

History: The stream or area within the stream corridor contains a site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region. Many such sites are listed on the National Register of Historic Places. A historic site(s) and/or features(s) is 50 years old or older in most cases.

Cultural: The stream or area within the stream corridor contains archaeological sites or areas significant to traditional cultures. Examples might be American Indian burial grounds, petroglyphs, the oldest known human use site in a region, or streams that support traditional agriculture, subsistence fishing, or religious ceremonies.

Other Values: While no specific national evaluation guidelines have been developed for the “other similar values” category, assessments of additional stream-related values consistent with the foregoing guidance may be developed including, but not limited to, hydrology, paleontology and botany resources.

Eligible Streams

The following three streams were found to be free-flowing and possess one or more outstandingly remarkable values.

Cow Creek

Stream Segment: 28.9 miles
Miles on BLM Land: 8.9

Historic Values: The Nez Perce were forced from their homeland in north central Idaho, southwestern Washington, and northeastern Oregon by expanding population of explorers, trappers, miners, and missionaries. This led to the first battle between the Nez Perce and settlers in 1877. Several more battles ensued as the U.S. Army chased over 750 Nez Perce over 1,200 miles through Idaho, Wyoming, and Montana as they tried to escape to Canada. At the end of September the Nez Perce arrived in the Missouri River Breaks country, crossed the river at Cow Island, and established camp on Cow Creek a few miles upstream of the Missouri River. The Nez Perce were in need of supplies so after being denied their request for provisions at the Cow Island steamboat landing, the Nez Perce warriors forcefully ran off the attendants, took the supplies they needed, and burned the rest. This was the last battle before the U.S. Army caught the Nez Perce on September 30, and forced them to surrender. This surrender is marked by the famous speech of Chief Joseph when he said, “I will fight no more forever.” The Nez Perce National Historic Trail was established in 1986. Cow Creek is a major landmark on this trail. The history in the area is extensive, but the Nez Perce Trail provides the only outstanding remarkable historic value.

Dog Creek

Stream Segment: 6.1 miles
Miles on BLM Land: 3.5

Geologic Values: Dog Creek contains the type locality described as the Judith River formation by F. V. Hayden, the first scientist to map the area, in 1853. The type section for a given formation is often named for surface features in the vicinity such as the Judith River. The formation was deposited during the late cretaceous period between 65 and 70 million years ago. The main channel of Dog Creek allows for an excellent opportunity to view the exposure of the Judith River formation. It provides an opportunity for geology students and hobby rock collectors alike to become

acquainted with the stratigraphy of the Judith River formation in the area.

Paleontology Values: The exposure of sandstone and coal layers provides an excellent potential for finding both vertebrate and invertebrate fossils. Dinosaur fossils have been discovered and collected from the area. The earliest collections were made in the 1850s, and supplied the museums of Europe with some of the first known specimens of Ceritopcian and Hadrasaur specimens. There are 23 different species of Pleisiosaur (a marine reptile) identified from the Judith River and overlying Bearpaw Shale formation. Commercial collectors, in recent times, have removed specimens from private land in the upper reaches of Dog Creek. Overall, the area has not been thoroughly inventoried, but it is believed to possess the best potential for future fossil finds.

Eagle Creek

River Segment: 2.2 miles
Miles on BLM Land: 0
BLM Use Easement 1.2 miles

Historic Values: Like a lot of areas in the Monument, there are many historic values on Eagle Creek from homesteads, pictographs, and an old post office, but the value that makes Eagle Creek outstandingly remarkable is the Lewis and Clark campsite. On May 31, 1805 Lewis and Clark stopped at the mouth of Eagle Creek and set up camp and saw the area very similar to the way it exists today. While camped they wrote one of their numerous journal entries about the romantic White Cliffs that dominate the Eagle Creek area. Although there are many Lewis and Clark campsites in the area, this is still very significant on a national level and has proven to attract visitors from all over the country.

Recreation Values: Eagle Creek provides the best opportunity for recreation in the Monument. The Missouri River attracts around 6,000 visitors a year to float sections of the river, with over 4,000 of those people visiting the White Cliffs stretch of the river. Eagle Creek is a major highlight along the 149-mile section frequented by floaters, and the first place most people camp in the White Cliffs section of the river. These factors along with the recreation opportunities listed below combine to make Eagle Creek the most frequented campsite along the Upper Missouri National Wild and Scenic River.

The Eagle Creek campsite has mature cottonwood trees that provide shade and make for an inviting campsite, while numerous trails to slot canyons, pictographs, and other scenic destinations provide plenty of recreation activities for campers. The Eagle Creek valley contains a nice hike that takes visitors up through the valley. A popular stop along this hike is the pictographs that feature a prehistoric

drawing of a horse. Many visitors come to Eagle Creek to camp where Lewis and Clark camped and to see the White Cliffs in an almost identical form to how Lewis and Clark saw them 200 years ago. All of these factors combine for an overall outstanding recreation value.

Scenic Values: The Eagle Creek section of the Upper Missouri National Wild and Scenic River is generally regarded as one of the most scenic stretches of the river. The Missouri River is flanked on one side by 30-100 feet tall White Cliffs that appear as they did 200 years ago during the epic Lewis and Clark expedition. The north shore of the Missouri River is a wide valley with cottonwoods ringing the river and a backdrop composed of rolling hills and cliffs. The valley that Eagle Creek flows through is very similar to these features of the Missouri River. From the mouth of Eagle Creek the spectacular Missouri River White Cliffs are in view, and as one looks upstream more spectacular cliffs flank both sides of Eagle Creek. These cliffs provide landforms and adjacent scenery that greatly enhance visual quality. These features are rare to the region, increasing their scarcity value. Cottonwood groves are intermittent along the stream and grass, trees, flowers, cliffs, and water provide color and vegetation that increase the scenic quality of the stream. This stream was rated an A on the scenic quality field inventory from all four vantage points. These vantage points encompass the entire section of Eagle Creek.

Classification

After eligibility is determined the second step is “potential classification based on the condition of the river and the adjacent lands.” Section 2(b) of the Act specifies three classification categories (wild, scenic, and/or recreational)

for eligible rivers. Classifying a river as either wild, scenic and/or recreational provides a general administrative categorization tool for interim management. Once a river segment is determined eligible and the appropriate classification determined, it must be afforded adequate protection until a final decision is reached on suitability and designation. Final classification is a Congressional legislative determination along with designation of a river segment as part of the NWSRS.

Potential Classification

The Act and Interagency Guidelines provide the following direction for establishing preliminary classifications for eligible rivers:

Wild rivers (W): Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic rivers (S): Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational rivers (R): Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Table I.3 lists the classification determinations for the eligible streams.

Table I.3
Classification Determinations for Eligible Streams

<i>Stream</i>	<i>Classification</i>	<i>Reason</i>
Cow Creek	Wild	Cow Creek is surrounded by the largest tracts of BLM land, and is generally considered the most wild and primitive area of the Monument. Access is more difficult into this area. There are some primitive public roads that can reach certain segments of the stream.
Dog Creek	Scenic	There are some major roads in the area, but these are all constrained to the Judith River valley area. Dog Creek is largely primitive and undeveloped. There are a few small structures, including a windmill and fence running through part of stream and valley. There is evidence of livestock grazing.
Eagle Creek	Scenic	The road that leads down from the Darlington ranch provides the only access other than Missouri River access. There is some evidence of human activity. A 4-wheeler trail runs up the valley and crosses the river at numerous points. There is a small amount of evidence of livestock grazing.

Rivers or river segments determined eligible must be managed to protect the free-flowing, outstandingly remarkable values, and tentative classification. This protective management is in place until a river or river segment is determined suitable or unsuitable for recommendation. During this interim protection any proposed action which may adversely impact or be inconsistent with wild and scenic river values would require management decisions based on National Environmental Policy Act (NEPA) analysis and Section 202 of the federal Land Policy and Management Act (FLPMA).

- Any proposed action which may be inconsistent with or adversely impact identified wild and scenic river (WSR) values would require a site-specific environmental assessment (EA), opportunity for public involvement, and at least a 30-day public comment period. The decision notice record for the EA (involving these types of actions) would be conducted and signed at the field office level. However, prior to signature a copy of supporting documentation would be forwarded to the State Director for review and concurrence.
- If the EA determined that the proposal could have a major action significantly affecting the environment, a separate environmental impact statement (EIS) apart from the BLM RMP/EIS would be required.
- Should the EA or EIS determine that the action as proposed, or with appropriate mitigation, or an acceptable alternative, would not have irreversible or irretrievable adverse impacts and would maintain or enhance identified WSR values, such action may be approved.
- If the EA or EIS determined that the action as proposed would have irreversible or irretrievable adverse impacts to identified WSR values, the decision on the action would be held temporarily in suspension until WSR evaluations are addressed and resolved through the BLM planning process.

Suitability

Once river segments have been evaluated and determined eligible for further study, agencies conduct an evaluation to determine if the segments are "suitable" or "unsuitable" for WSR designation within their resource management planning processes (Section 5(d)(1)). In this process, river values and their potential for designation are analyzed along with other resource values, issues and alternatives.

Suitability represents an assessment or determination as to whether or not eligible river segments should be recommended for inclusion in the NWSRS by Congress. Charac-

teristics which do or do not make the area a worthy addition to the NWSRS are described in the Act (factors 1 through 6) and may include additional suitability factors (7 through 13).

Cow Creek

The Nez Perce National Historic Trail is the highlight of this area's history, but the history is diverse. Archaeological studies indicate as far back as 6,000 years ago prehistoric people were using the flat valley of Cow Creek. Diverse arrays of homesteads were once common in the area. Cow Island served as the farthest upriver port during low water years (Monahan and Biggs, 2001).

1. The current status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses. Jurisdictional consideration must be taken into account to the extent that management would be affected.

28.9 miles total
08.9 miles BLM
20.0 miles private
31% on BLM

Although a majority of the stream miles are on private land, most of the land in the area is BLM. The private land includes the valley of Cow Creek. There are no oil and gas leases on Cow Creek but there is one lease adjacent to this area. This area has a low potential for development.

The BLM land along this segment is available for livestock grazing. Private land in the area is primarily used for livestock grazing and farming.

2. The reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed or curtailed if the area were included in the NWSRS, and the values which could be foreclosed or diminished if the area is not protected as part of the NWSRS.

There is potential that a portion of the private land could be developed for home/recreational residences. There is some small farm fields (<400 acres) on private land along Cow Creek in the northern part of the area. There are some small acreages that could be developed for agricultural crops; however, it is unlikely they would be developed.

An existing reservoir in the upper watershed of Cow Creek impounds the main channel and could manipulate the flow rate in the stream. However, because of the nature of the reservoir, the volume

of water and stream characteristics it does not appear likely to ever sustain a perennial stream.

It is unlikely that further dams/reservoirs would be constructed on private land to further impound water in Cow Creek proper. Construction of small reservoirs and pits on tributary drainages is possible on BLM or private land further limiting water flowing into Cow Creek.

Direct recreational use of water (fishing, floating, etc.) is not a feature of the area or Cow Creek and is unlikely in the future.

3. The federal agency or state agency that will administer the river and/or area should it be added to the NWSRS.

Bureau of Land Management

4. Federal, state, local, tribal, or other interests in the designation or nondesignation of the river, including the extent to which the agency proposes that administration of the river, including the costs thereof, be shared by state, local, or other agencies and individuals.

County government has indicated they are opposed to the designation of Cow Creek as a WSR.

The National Park Service may be interested in participating to the extent of recognition of the Nez Perce National Historic Trail, but beyond that it is unlikely.

Fort Belknap (Gros Ventre and Assiniboine) makes claims west of the reservation as far as and including Cow Creek, but these claims have not been affirmed.

The airspace over Cow Creek is in the Hays Military Operations Area (MOA). This is a designated airspace for military aircraft training. The Department of Defense and, specifically, the Montana Air National Guard may have concerns about the designation of Cow Creek as a WSR.

5. The estimated cost to the United States of acquiring necessary lands and interest in lands and of administering the area should it be added to the NWSRS.

About 3,200 acres of private land would be included within the boundary of Cow Creek if it were designated a Wild and Scenic River. Costs of acquisition with regard to Cow Creek are based on the average value of agricultural land at \$100/acre, as well as recent appraisals of Missouri River frontage with recreational home sites considered

the highest and best use and valued at \$1,850/acre. Using those same values, the Cow Creek lands could range in value from \$320,000 to \$5,920,000, or somewhere in between. Acquisition would only be accomplished with willing sellers and it is unlikely that private land holders would be willing to sell the land. Costs of administration would be minimal.

6. A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.

It is not anticipated that the state or local governments would participate.

7. The federal agency's ability or other mechanisms (existing or potential) to protect and manage the identified river-related values other than WSR designation. The state/local government's ability to manage and protect the ORVs on non-federal lands.

The Cow Creek Area of Critical Environmental Concern (ACEC) includes the lower reaches of Cow Creek on BLM land. Designation as an ACEC was made to protect portions of the Nez Perce and Lewis and Clark National Historic Trails, high scenic quality and paleontological resources.

The Cow Creek Wilderness Study Area (WSA) is on the east side of the lower reaches of Cow Creek.

The Upper Missouri National Wild and Scenic River includes the mouth of Cow Creek. This section of the river is designated "Wild."

The Hays Military Operations airspace over Cow Creek is commonly used for military aircraft training.

8. An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

Blaine County does not have any zoning limitations on Cow Creek.

The federal minerals are closed to new leasing. Gas leases maybe possible on private minerals; however, past explorations were unsuccessful.

9. Support or opposition to designation.

There is general opposition by local governmental interests, believing that the designations currently

in place are more than enough for adequate protection. Also the character of the area is not that of a "river." Local support is unlikely. No known other interest.

10. Historical or existing rights which could be adversely affected.

There are water claims on Cow Creek for various uses along its entire length. It does not appear that there is a reserve water right on the creek to maintain a minimum flow. There are active grazing permits for the BLM land and grazing is the historic use of the private land along Cow Creek.

11. The consistency of designation with other agency plans, programs or policies and in meeting regional objectives.

Designation would effectively be redundant of current designations.

Other agency plans do not assert management on Cow Creek. Water rights through the Montana Department of Natural Resources and Conservation will adjudicate claims for water in Cow Creek at some time in the future.

12. The contribution to river system or basin integrity.

Cow Creek does flow into the Missouri River, which is designated a WSR. However, the headwaters of Cow Creek and its tributaries are mostly private land. Only the lower reaches of Cow Creek have significant amounts of BLM land and even in this area, the channel of Cow Creek is mostly private land. Water available in the headwaters is being used for irrigation and other uses. Though the upper reaches of Cow Creek are mostly perennial, the lower reaches of Cow Creek are ephemeral. From a practical standpoint it is not likely that a total system management strategy can be pursued with a focus on the total watershed.

13. The potential for water resources development.

There is currently one mainstream reservoir on Cow Creek near the headwaters that impounds water for irrigation and recreation. This reservoir is on private land. It is unlikely that further water impoundments would be installed on Cow Creek. It is unlikely flood control, hydropower facilities, dredging or diversions or channelization of Cow Creek will occur.

Conclusion: This segment of Cow Creek is not suitable for designation because of the lack of BLM land ownership, the area is including in either the UMNSWR or Cow Creek ACEC, and management of the area already provides protection for the values along this segment of Cow Creek.

Dog Creek

The geologic and paleontology values are the creek's primary value, but the creek does possess the potential for excellent recreation opportunities. There is no public access to Dog Creek.

1. The current status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses. Jurisdictional consideration must be taken into account to the extent that management would be affected.

6.10 miles total
3.45 miles BLM
2.65 miles private
57% on BLM

The creek has grazing and evidence of grazing, including fencing. The area has a low to moderate potential for oil and gas, and no federal mineral leases. There are some leases that straddle Dog Creek outside of the monument, but again a low to moderate potential of these being developed for natural gas.

2. The reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed or curtailed if the area were included in the NWSRS, and the values which could be foreclosed or diminished if the area is not protected as part of the NWSRS.

No foreseeable changes or values diminished.

3. The federal agency or state agency that will administer the river and/or area should it be added to the NWSRS.

Bureau of Land Management.

4. Federal, state, local, tribal, or other interests in the designation or nondesignation of the river, including the extent to which the agency proposes that administration of the river, including the costs thereof, be shared by state, local, or other agencies and individuals.

State and local governments have indicated they are not interested in management of Dog Creek as a WSR. No other known interest.

5. The estimated cost to the United States of acquiring necessary lands and interest in lands and of administering the area should it be added to the NWSRS.

About 424 acres of private land would be included within the boundary of Dog Creek if it were designated a Wild and Scenic River. That figure is based on the following formula: 2.65 miles of private x 5,280 ft/mile x 1,320 ft (.25 miles) divided by 43,560 (square ft/acre). Costs of acquisition with regard to Dog Creek are based on the average value of agricultural land or \$100/acre, as well as recent appraisals of Missouri River frontage with recreational homesites considered the highest and best use and valued at \$1,850/acre. Using those same values, the Dog Creek lands could range in value from \$42,400 to \$784,400, or somewhere in between. Acquisition would only be accomplished with willing sellers and it is unlikely that private land holders would be willing to sell the land. Costs of administration would be minimal.

6. A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.

It is not anticipated that the state or local governments would participate.

7. The federal agency's ability or other mechanisms (existing or potential) to protect and manage the identified river-related values other than WSR designation. The state/local government's ability to manage and protect the ORVs on non-federal lands.

One mile of the creek is within the Dog Creek WSA. Public access is from the Missouri River; there is no public road access.

The Upper Missouri National Wild and Scenic River includes the mouth of Dog Creek. This segment of the river is designated "Wild."

8. An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

No local zoning.

9. Support or opposition to designation.

State and local government are opposed to designation and local support is unlikely. No other known interest.

10. Historical or existing rights which could be adversely affected.

None.

11. The consistency of designation with other agency plans, programs or policies and in meeting regional objectives.

Consistent with management plan of the UMNSWR.

12. The contribution to river system or basin integrity.

Limited contribution.

13. The potential for water resources development.

Not enough year-round flow to lead to water development.

Conclusion: The BLM has determined that this segment of Dog Creek is not suitable for designation because of the lack of continuous BLM land ownership, the area is including in the UMNSWR and Dog Creek WSA, and management of the area already provides protection for the values along this segment of Dog Creek.

Eagle Creek

Eagle Creek is eligible for historic, recreation, and scenic values. These values are the most important characteristics of Eagle Creek. Several homesteaders were in the area, and even a post office that lasted for 15 months. Eagle Creek played a role in the history of the steamboat era. One steamboat burned in the Missouri right off Eagle Creek and the USS Mandan crew spent the winter in the Eagle Creek area after ice locked the boat in for the season (Monahan and Biggs, 2001). Access to Eagle Creek is provided at its mouth with the Missouri River. This is the only access, but with only 2.2 miles within the Monument, it is an easy walk to explore this entire valley.

1. The current status of land ownership, minerals (surface and subsurface), use in the area, including the amount of private land involved and associated or incompatible uses. Jurisdictional consideration must be taken into account to the extent that management would be affected.

2.2 miles total
1.2 miles private (BLM easement)
1.0 miles state
0% BLM
55% private (BLM easement)
45% state

Although Eagle Creek and the campsite are not part of the BLM's land holdings, 1 mile of the creek is state land and the rest of the creek is accessible to the public, since a BLM use easement covers the channel of Eagle Creek. Eagle Creek has no federal oil and leases and the area has a very low potential for future development. The state land could be developed for oil and gas, but it is unlikely because of the low potential for natural gas.

2. The reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed or curtailed if the area were included in the NWSRS, and the values which could be foreclosed or diminished if the area is not protected as part of the NWSRS.

This area will continue to have concentrated recreation use, which will likely increase in the future. The area will continue to be used for live-stock grazing.

3. The federal agency or state agency that will administer the river and/or area should it be added to the NWSRS.

Since the area does not include BLM land, the state would be the likely agency to administer the area. However, the state is not interested in management of the area as a WSR.

4. Federal, state, local, tribal, or other interests in the designation or nondesignation of the river, including the extent to which the agency proposes that administration of the river, including the costs thereof, be shared by state, local, or other agencies and individuals.

State and local governments have indicated they are not interested in management of Eagle Creek as a WSR. The airspace over Eagle Creek is in the Hays Military Operations Area (MOA). This is a designated airspace for military aircraft training. The Department of Defense and, specifically, the Montana Air National Guard may have concerns about the designation of Eagle Creek as a WSR.

5. The estimated cost to the United States of acquiring necessary lands and interest in lands and of administering the area should it be added to the NWSRS.

The BLM has a use easement for management of the campground and a conservation easement for land surrounding the campground (to prevent development). The easements are tied to the Upper Missouri National Wild and Scenic River designation. Eagle Creek is within this current designa-

tion. About 192 acres of private land would be included within the boundary of Eagle Creek as a designated Wild and Scenic River. That figure is based on the following formula: 1.2 miles of private x 5,280 ft/mile x 1,320 ft (.25 miles) divided by 43,560 (square ft/acre). Costs of acquisition with regard to Eagle Creek are based on recent appraisals of Missouri River frontage valued at \$1,850/acre. Using that same value, the Eagle Creek land would be valued at \$355,200, more or less. Acquisition would only be accomplished with willing sellers and it is unlikely that private land holders would be willing to sell the land. Costs of administration would be minimal.

6. A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the NWSRS.

It is not anticipated that the state or local governments would participate.

7. The federal agency's ability or other mechanisms (existing or potential) to protect and manage the identified river-related values other than WSR designation. The state/local government's ability to manage and protect the ORVs on non-federal lands.

The BLM currently has a conservation easement for land surrounding the campground in this area (to prevent development).

The Upper Missouri National Wild and Scenic River includes the mouth of Eagle Creek. This section of the river is designated "Wild."

The Hays Military Operations airspace over Eagle Creek is commonly used for military aircraft training.

8. An evaluation of the adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

Chouteau County zoning regulations. The BLM currently has a conservation easement for land surrounding the campground in this area (to prevent development).

9. Support or opposition to designation.

There is general opposition by local governmental interests. The current designations in place are more than enough for adequate protection of the area. Local support is unlikely.

10. Historical or existing rights which could be adversely affected.

None.

11. The consistency of designation with other agency plans, programs or policies and in meeting regional objectives.

Designation may impede BLM goals for managing the Monument and the ability to achieve cooperation with local landowners. Designation would be effectively redundant of the current designations (Monument and UMNWSR).

12. The contribution to river system or basin integrity.

Not a contribution to the river system. Eagle Creek does flow into the Missouri River, which is designated a WSR. All of the eligible stream is on private land. From a practical standpoint it is not likely that a total system management strategy can be pursued with a focus on the total watershed.

13. The potential for water resources development.

The flows in Eagle Creek are low except for the spring runoff. The potential for water resource development is low. It is unlikely flood control, hydropower facilities, dredging or diversions or channelization of Eagle Creek will occur.

Conclusion: This segment of Eagle Creek is not suitable for designation because of the lack of BLM land ownership, the area is including in the UMNWSR, and management of the existing easements provide protection for the values along this segment of Eagle Creek.

APPENDIX J

Standards and Indicators

Alternatives C and F (Preferred Alternative)

Topic: Opportunities for Boaters

Indicators, Desired Future Conditions, Standards and Actions to manage visitor use opportunities within Limits of Acceptable Change without invoking a permit system or allocation of use.

Indicator 1. Sight and sound levels that create opportunities for privacy, solitude, and a primitive boating and camping experience.

Desired Future Condition

Maintain use opportunities without constraint of a permit system (other than a self-registration permit) and allocation of visitor use. Visitors will have the opportunity to periodically experience moments of solitude on some portion of their trip. Visitors will have the opportunity to camp in primitive sites that reflect natural qualities of the river environment.

Standard

Two occurrences of 170 people launching per day (based on a running 3-day average) from a total of all sites located between the Chouteau County Fairgrounds Campground and Canoe Launch, and Coal Banks Landing.

Three occurrences of 100 people launching per day (based on a running 3-day average) from a total of all sites located between Judith Landing and the James Kipp Recreation Area.

Monitoring

Analysis of boater registration data.

Management Actions

The following is a list of actions managers could select from as needed to maintain the sight and sound standard. Other actions may be developed as needed to adapt to changes in visitor use patterns.

- Create a web-based mandatory registration system that would provide information to potential boaters regarding high use launch days. This would allow boaters the option of selecting dates outside of busy timeframes.

- Encourage boaters to stagger launches at the put-in (don't launch until the group in front of you is out of sight and sound) and when leaving camp on subsequent days.
- Encourage groups of boaters to stay in a compact flotilla. Discourage boaters from spreading out with wide distances between boats in the same party.
- From June 15 to August 1, require groups larger than 20 people to launch on Wednesday, Thursday or Friday.
- From June 15 to August 1, require groups larger than 20 people camping between Coal Banks Landing and Judith Landing to camp only in Level 2 sites, and begin to identify Level 4 camping opportunities on the floater maps.
- From June 15 to August 1 limit all groups to a one-night stay at any Level 2, 3 or 4 site between Coal Banks Landing and the James Kipp Recreation Area.
- Pursue purchase or lease of sites to develop additional Level 2 or 3 camping opportunities.
- Develop additional Level 3 primitive boat camps on existing public land.
- Construct additional Level 2 sites in areas where visual integrity could be maintained.
- Require groups of 20 people or larger to acquire an SRP with stipulations on date they can launch and where they can camp.
- Develop and implement a group size limit of 20 people. If this group size limit does not effectively reduce impacts then smaller group size limits may be considered.

Indicator 2. The condition class of Level 2, 3 and 4 sites (excellent, good, fair, poor).

Desired Future Condition

The Upper Missouri River will have a diverse set of camping and visitor opportunities and there will be fair access to campsites among all types of users. Campsites along the river will reflect natural qualities and have minimal congestion. A range of camping opportunities will be present throughout the river corridor.

Standard

All Level 2, 3, and 4 sites will be in fair or better condition.

Monitoring

Measure the disturbance to individual campsites. Campsite monitoring will take place in August and September. Level 3 and 4 sites in designated wild and scenic sections will be monitored each year. Level 3 and 4 sites in designated recreation sections will be monitored every 2 years. Level 2 sites in any designated section will be monitored every 2 years.

Management Actions

As needed to maintain class standard:

- Aggressively promote Leave No Trace standards and use of existing sites.
- Promote use of Level 2 sites (concentrate use).
- Modify current Level 2 sites to provide for screening and privacy and provide surface hardening in areas of high use (fire rings, restrooms, social trails).
- Rest and rotate individual sites.
- Close and rehabilitate individual sites.
- Purchase short-term leases from private landowners to create additional Level 3 and 4 opportunities.
- Develop additional Level 3 and 4 sites on existing public land.

Indicator 3. River corridor riparian health assessment score.

Desired Future Condition

Sites for potential riparian habitat will be in proper functioning condition and following natural succession. Native vegetation will be present throughout the river corridor without competition from exotic, invasive species. Soil erosion and compaction from human use is minimized and areas around campsites support natural vegetation. Return of natural flows and less impact from man-made controls.

Standard

A score of 80%, or health in an upward trend.

Monitoring

Riparian health assessment.

Management Actions

Actions would occur when visitor use is determined to be the major impacting factor.

- Rest/rotate Level 3 and 4 sites.
- Close Level 3 and 4 sites as necessary.

Indicator 4. The condition class or rating of homestead historical interpretive sites (rating to be developed).

Desired Future Condition

Condition of homesteads will be adequate to maintain eligibility to the National Register of Historic Places.

Standard

A quantitative rating or score that preserves the historic and interpretive value of the time period in which the homestead was established.

Monitoring

Establish a baseline rating or score with parameters indicative of condition of building interior, exterior, contents and surrounding grounds. Monitoring will be completed at the end of each season of use.

Management Actions

As needed to maintain historic and interpretive value. Actions would occur when visitor use is determined to be the major impacting factor:

- Develop a sign-in log book.
- Develop and post a list of visitor use restrictions.
- Close doors to interior building access.
- Develop exclosures to keep visitors away from buildings.
- Close sites to visitor use.

Indicator 5. Increase of weed infestations adjacent to or within recreation sites and trails.

Desired Future Condition

Major trails and other high use areas will be free of weed infestations.

Standard

No increase of weed infestations beyond baseline.

Monitoring

Annual assessment and inventory.

Management Actions

As needed to maintain weed infestation standards:

- Aggressive visitor education program.
- Chemical and biological treatment.
- Closure of campsites and trails in highly infested areas.

Alternative D

Topic: Opportunities for Boaters

Indicators, Desired Future Conditions, Standards and Actions to manage visitor use opportunities within Limits of Acceptable Change.

Indicator 1. Sight and sound levels that create opportunities for privacy, solitude, and a primitive boating and camping experience

Desired Future Condition

Visitors will have the opportunity to experience solitude, free from sight and sound of other groups, on some portion of their trip. Visitors will have the opportunity to camp in primitive sites that reflect natural qualities of the river environment.

Standard

One occurrence of 170 people launching per day (based on a running 3-day average) from a total of all sites located between the Chouteau County Fairgrounds Campground and Canoe Launch, and Coal Banks Landing.

Two occurrences of 100 people launching per day (based on a running 3-day average) from a total of all sites located between Judith Landing and the James Kipp Recreation Area.

Monitoring

Analysis of boater registration data.

Management Actions

The following is a list of actions managers could select as needed to maintain the sight and sound standard. Other actions may be developed as needed to adapt to changes in visitor use patterns.

- Create a web-based mandatory registration system that would provide information to potential boaters regarding high use launch days. This would allow boaters the option of selecting dates outside of busy timeframes.
- Encourage boaters to stagger launches at the put-in (don't launch until the group in front is out of sight and sound) and when leaving camp on subsequent days.
- Encourage groups of boaters to stay in a compact flotilla. Discourage boaters from spreading out with wide distances between boats in the same party.
- From June 15 to August 1, require groups larger than 20 people to launch on Wednesday, Thursday or Friday.
- From June 15 to August 1, require groups larger than 20 people camping between Coal Banks Landing and Judith Landing to camp only in Level 2 sites, and begin to identify Level 4 camping opportunities on the floater maps.
- From June 15 to August 1, limit all groups to a one-night stay at any Level 2, 3 or 4 site between Coal Banks Landing and the James Kipp Recreation Area.
- Pursue purchase or lease of sites to develop additional Level 2 and 3 camping opportunities.
- Develop additional Level 3 primitive boat camps on existing public land.
- Construct additional Level 2 sites in areas where visual integrity could be maintained.
- Require groups of 20 people or larger to acquire an SRP with stipulations on the date they can launch and where they can camp.
- Develop and implement a group size limit of 20 people. If this group size limit does not effectively reduce impacts, then smaller group size limits may be considered.
- Develop and implement a temporary, one-time emergency allocation system.
- Develop and implement a seasonal allocation system (e.g., June 15 to August 1).
- Develop and implement an allocation only for the White Cliffs section of the river.
- Develop and implement a river-wide allocation system.

Indicator 2. The condition class of Level 2, 3 and 4 sites (excellent, good, fair, poor).

Desired Future Condition

The Upper Missouri River will contain a diverse set of camping and visitor opportunities and there will be fair access to campsites among all types of users. Campsites along the river will reflect natural qualities and have minimal congestion. A range of camping opportunities will be present from Fort Benton to Judith Landing. From Judith Landing to the James Kipp Recreation Area opportunities for primarily primitive camping will be present.

Standard

All Level 3 and 4 sites in the designated wild and scenic sections will be in good or excellent condition. All Level 3 and 4 sites in designated recreation sections will be in fair or better condition. Level 2 sites in any designated section will be in fair or better condition.

Monitoring

Measure the disturbance to individual campsites. Campsite monitoring will be conducted in August and September. Level 3 and 4 sites in designated wild and scenic sections will be monitored each year. Level 3 and 4 sites in designated recreation sections will be monitored every 2 years. Level 2 sites in any designated section will be monitored every 2 years.

Management Actions

As needed to maintain class standard:

- Aggressively promote Leave No Trace standards and use of existing sites.
- Promote use of current Level 2 sites (concentrate use).
- Modify current Level 2 sites to provide for screening and privacy and provide surface hardening in areas of high use (fire rings, restrooms, social trails).
- Rest and rotate individual sites.
- Close and rehabilitate individual sites.
- Develop a maximum group size for Level 3 and 4 sites.
- Purchase short-term leases from private landowners to create additional Level 3 and 4 opportunities.

Indicator 3. River corridor riparian health assessment score

Desired Future Condition

Sites for potential riparian habitat will be in proper functioning condition and following natural succession. Native vegetation will be present throughout the river corridor without competition from exotic, invasive species. Soil erosion and compaction from human use is minimized and areas around campsites support natural vegetation. Return of natural flows and less impact from man-made controls.

Standard

A score of 80%, or health in an upward trend.

Monitoring

Riparian health assessment.

Management Actions

Actions would occur when visitor use is determined to be the major impacting factor.

- Rest/rotate Level 3 and 4 sites.
- Close Level 3 and 4 sites as necessary.

Indicator 4. The condition class or rating of homestead historical interpretive sites

Desired Future Condition

Condition of homesteads will be adequate to maintain eligibility to the National Register of Historic Places.

Standard

A quantitative rating or score that preserves the historic and interpretive value of the time period in which the homestead was established.

Monitoring

Establish a baseline rating or score with parameters indicative of condition of building interior, exterior, contents and surrounding grounds. Monitoring will be completed at the end of each season of use.

Management Actions

As needed to maintain historic and interpretive value:

- Develop a sign-in log book.
- Develop and post a list of visitor use restrictions.
- Close doors to interior building access.
- Develop exclosures to keep visitors away from buildings.
- Close sites to visitor use.

Indicator 5. Increase of weed infestations adjacent to or within recreation sites and trails

Desired Future Condition

Major trails and other high use areas will be free of weed infestations.

- Standard**

No increase of weed infestations beyond baseline.

Monitoring

Annual Assessment and Inventory.

Management Actions

As needed to maintain weed infestation standards:

 - Aggressive visitor education program.
 - Chemical and biological treatment.
 - Closure of campsites and trails in highly infested areas.

APPENDIX K

Oil and Gas

Appendix K contains three separate sections, as follows:

K.1 Oil and Gas Lease Stipulations and Conditions of Approval by Alternative	436
K.2 Oil and Gas Board Orders	467
K.3 Reasonable Foreseeable Development	469

Appendix K.1

Oil and Gas Lease Stipulations and Conditions of Approval

This section of Appendix K provides the stipulations and conditions of approval that apply or would be applied to the oil and gas leases in the Monument under each alternative.

Alternative A (Current Management) – Oil and Gas Lease Stipulations

West HiLine Oil and Gas Leases (12 Leases)

Twelve oil and gas leases were issued under the West HiLine Resource Management Plan (RMP) (Table K.1-1). These oil and gas leases include stipulations for a variety of resources should they be present on the lease during the permitting process (see Attachment K.1-1). The stipulations include: seasonal or distance restrictions to protect sage-grouse nesting areas, sage-grouse winter habitat, and big game crucial winter range; controlled surface use to protect soils and visual resources; no surface occupancy to protect sage-grouse leks, designated sensitive species and streams and riparian/wetland areas. A notice is used to inform lessees and operators of the requirements for cultural resource historic preservation compliance.

Non-West HiLine Oil and Gas Leases (31 Leases)

Two oil and gas leases were issued with stipulations for a variety of resources, which are the same as those attached to the West HiLine leases (see Table K.1-1 and Attachment K.1-1).

Three oil and gas leases were issued with reasonable requirements/conditions for soil erosion, air and water pollution, and unnecessary damage to the surface vegetation. The stipulations also included no occupancy of the surface within specific distances from improved roads, highways, trails, and water sources (lakes, ponds, reservoirs, and springs) (see Table K.1-1 and Attachments K.1-2 and K.1-3).

Twenty-six oil and gas leases were issued without stipulations (see Table K.1-1).

Conditions of Approval

During the permitting process for applications for permits to drill (APDs), conditions of approval may also be applied

to surface-disturbing activities consistent with the lease rights (Table 2.21, Chapter 2). These conditions would be considered on a case-by-case basis during the well onsite visit and review of the APD.

Alternative B – Oil and Gas Conditions of Approval

In addition to the oil and gas lease stipulations addressed under Alternative A, the following conditions of approval would be applied to APDs on lease acreage in the Monument. (See Table K.1-2 at the end of this section.)

No Surface Disturbance

Resource: Wildlife – Greater Sage-Grouse Leks

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of sage-grouse leks.

Objective: To protect sage-grouse lek sites necessary for the long-term maintenance of grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting sage-grouse lek sites, or if all lek sites within 1/4 mile of the area have not been used for 5 consecutive years.

Timing

Resource: Wildlife – Greater Sage-Grouse Nesting Zone

Condition of Approval: Surface disturbance is prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. This condition does not apply to the operation and maintenance of production facilities.

**Table K.1-1
Oil and Gas Leases in the Monument**

<i>MTM Lease No.</i>	<i>Lease Stipulations (Example)</i>	<i>Lease Date</i>	<i>Lease Acreage in the Monument</i>	<i>Lease Acreage outside the Monument</i>	<i>Total Lease Acreage</i>	<i>Lease Status - Actual, Allocated or No Production</i>
West HiLine Leases						
084559	Attachment K.1	11/1/1995	1,880	0	1,880	No Production
084560	Attachment K.1	11/1/1995	134	1,119	1,253	No Production
087212	Attachment K.1	9/1/1997	122	528	650	No Production
087658	Attachment K.1	2/1/1998	485	0	485	No Production
089082	Attachment K.1	5/1/1999	1,131	167	1,298	No Production
089452	Attachment K.1	11/1/1999	800	0	800	No Production
089469	Attachment K.1	11/1/1999	640	0	640	No Production
089473	Attachment K.1	11/1/1999	1,240	0	1,240	No Production
089474	Attachment K.1	11/1/1999	80	480	560	No Production
089475	Attachment K.1	12/1/1999	1,280	0	1,280	No Production
089476	Attachment K.1	12/1/1999	1,120	160	1,280	No Production
089482	Attachment K.1	11/1/1999	1,416	0	1,416	No Production
Subtotal			10,328	2,454	12,782	
Non-West HiLine Leases						
13821-A	None	11/1/1969	1,099	0	1,099	Actual
1903-B	None	6/1/1967	320	240	560	Actual
1565	None	5/1/1967	2,560	0	2,560	Actual/Allocated
1568	None	5/1/1967	2,320	240	2,560	Actual
1578	None	5/1/1967	575	1,988	2,563	Actual
1885	None	6/1/1967	40	611	651	Allocated
1886	None	6/1/1967	1,920	640	2,560	Actual
1888	None	6/1/1967	480	1,982	2,462	Actual
1903	None	6/1/1967	1,360	200	1,560	Allocated
1914	None	6/1/1967	200	440	640	Actual
2060	None	7/1/1967	640	0	640	Actual
2061	None	7/1/1967	640	0	640	Allocated
13816	None	11/1/1969	2,533	0	2,533	Actual
13818	None	11/1/1969	2,532	0	2,532	Allocated
13827	None	11/1/1969	1,156	0	1,156	Allocated
16098	None	9/1/1970	1,240	1,280	2,520	Allocated
16102	None	9/1/1970	1,506	163	1,669	Allocated
16103	None	9/1/1970	13	2,507	2,520	Actual
16327	None	10/1/1970	80	2,358	2,438	Actual/Allocated
16458	None	10/1/1970	688	1,272	1,960	Actual
16461	None	10/1/1970	2,547	0	2,547	Actual
16617	None	11/1/1970	490	929	1,419	Allocated
16618	None	11/1/1970	320	2,240	2,560	Actual/Allocated
16939	None	12/1/1970	2,530	0	2,530	Actual
17376	None	2/1/1971	40	80	120	Allocated
18274	Attachments K.1	7/1/1971	1,367	1,160	2,527	Allocated
18282	Attachments K.1 & K.2	5/1/1973	851	1,680	2,531	Actual
18283	Attachments K.1 & K.2	5/1/1973	1,240	1,320	2,560	Actual/Allocated
19446	None	9/1/1971	110	1,113	1,223	Actual/Allocated
53751	Attachment K.1	6/1/1982	680	160	840	Actual
89460	Attachment K.1	11/1/1999	400	40	440	No Production
Subtotal			32,477	22,643	55,120	
Total			42,805	25,097	67,902	

Objective: To protect sage-grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to protect nesting activities adjacent to nesting sites for the long-term maintenance of sage-grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain sage-grouse nesting habitat within 2 miles of a lek. The dates for the timing restriction may be modified if new information indicates that the March 1 to June 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains sage-grouse nesting habitat within 2 miles of a lek.

Timing

Resource: Wildlife - Greater Sage-Grouse Crucial Winter Habitat

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect sage-grouse winter habitat from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain winter habitat for sage-grouse. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains winter habitat for sage-grouse.

Controlled Surface Use

Resource: Wildlife – Designated Sensitive Species

Condition of Approval: Surface disturbance may be controlled or excluded within 200 meters of the activity or the activity delayed 60 days within identified crucial habitat or active nests.

Objective: To maintain habitat for designated sensitive species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated. Seasonal exceptions may be allowed from August 1 through March 1 (the nonbreeding season for birds) if the authorized officer determines that the proposed activity will not disturb the production potential of designated sensitive species.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting designated sensitive species.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting designated sensitive species.

No Surface Disturbance

Resource: Wildlife – Black-Tailed Prairie Dogs

Condition of Approval: Surface disturbance is prohibited on prairie dog towns.

Objective: To protect prairie dog colonies and habitat for associated species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting black-tailed prairie dogs.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting black-tailed prairie dogs.

Timing

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Condition of Approval: Surface disturbance is prohibited within 1 mile of active winter roosting areas from November 15 to February 29, if disturbance could cause an adverse effect.

Surface disturbance is prohibited within 1 mile of active bald eagle nests from February 1 to July 31, if disturbance could cause nest abandonment or failure.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the Endangered Species Act (ESA) and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the U.S. Fish and Wildlife Service (USFWS).

Modification: The boundaries of the affected area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This condition may be waived if the authorized officer, in consultation with the USFWS, determines that the affected area can be occupied without adversely affecting bald eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected under the ESA.

Timing

Resource: Wildlife – Big Game Winter Range

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within winter range for deer and elk and crucial antelope winter range. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect crucial elk, mule deer, and antelope winter range from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains crucial winter range for wildlife.

Controlled Surface Use

Resource: Wildlife – Bighorn Sheep Distribution

Condition of Approval: Surface disturbance may be controlled or excluded within 200 meters of the activity or the activity delayed 60 days within bighorn sheep distribution areas.

Objective: To protect bighorn sheep during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep distribution.

Timing

Resource: Wildlife – Bighorn Sheep Lambing Areas

Condition of Approval: Surface disturbance is prohibited from April 1 to June 15 within bighorn sheep lambing areas. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect bighorn sheep during the lambing season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep lambing areas. The dates for the timing restriction may be modified if new wildlife use information indicates that the April 15 to June 30 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep lambing areas.

No Surface Disturbance

Resource: Streams and Riparian/Wetland Areas

Condition of Approval: Surface disturbance is prohibited within the channels of ephemeral, intermittent, and perennial streams, or within riparian and wetland areas.

Objective: To protect the unique biological and hydrological features associated with riparian and wetland areas.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include streams or riparian/wetland areas.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include streams or riparian/wetland areas.

Controlled Surface Use

Resource: Soils/Steep Slopes

Condition of Approval: Prior to surface disturbance on slopes 30% and greater, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- The site and adjacent areas will be protected from accelerated erosion, such as rilling, gullyng, piping, slope failure, and mass wasting.
- Nearby watercourses will be protected from sedimentation. Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.

- Construction or reclamation will not be allowed when soils are frozen.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems.

Exception: None.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 30% and greater.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 30% and greater.

Controlled Surface Use

Resource: Visual Resource Management (VRM) Classes I, II, III and IV

Condition of Approval: All surface-disturbing activities, semi-permanent and permanent facilities in VRM Classes I, II, III, and IV areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Recreation

Condition of Approval: Surface disturbance is prohibited within 300 feet of developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified by the authorized officer if the recreation area boundaries are changed.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

Controlled Surface Use

Resource: Historic Properties and/or Cultural Resources

Condition of Approval: The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Objective: To protect historic properties and/or other cultural resources.

Exception: None.

Modification: None.

Waiver: None.

Alternative C – Oil and Gas Conditions of Approval

In addition to the oil and gas lease stipulations addressed under Alternative A, the following conditions of approval would be applied to APDs on lease acreage in the Monument. (See Table K.2 at the end of this Appendix.)

No Surface Disturbance

Resource: Wildlife – Greater Sage-Grouse Leks

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of sage-grouse leks.

Objective: To protect sage-grouse lek sites necessary for the long-term maintenance of grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting sage-grouse lek sites, or if all lek sites within 1/4 mile of the area have not been used for 5 consecutive years.

Timing

Resource: Wildlife – Greater Sage-Grouse Nesting Zone

Condition of Approval: Surface use is prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect sage-grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to protect nesting activities adjacent to nesting sites for the long-term maintenance of sage-grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain sage-grouse nesting habitat within 2 miles of a lek. The dates for the timing restriction may be modified if new information indicates that the March 1 to June 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains sage-grouse nesting habitat within 2 miles of a lek.

Timing

Resource: Wildlife - Greater Sage-Grouse Crucial Winter Habitat

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within winter habitat for sage-grouse. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect sage-grouse winter habitat from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain winter habitat for sage-grouse. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains winter habitat for sage-grouse.

Controlled Surface Use

Resource: Wildlife – Black-Tailed Prairie Dogs

Condition of Approval: Surface disturbance would be avoided, or minimized, on prairie dog towns.

Objective: To protect prairie dog colonies and habitat for associated species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting black-tailed prairie dogs.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting black-tailed prairie dogs.

No Surface Disturbance

Resource: Wildlife – Designated Sensitive Species

Condition of Approval: Surface disturbance is prohibited within identified crucial habitat or within 1/4 mile of active nests.

Objective: To maintain habitat for special status species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan

which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated. Seasonal exceptions may be allowed from August 1 through March 1 (the nonbreeding season for birds) if the authorized officer determines that the proposed activity will not disturb the production potential of special status species.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting special status species.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting special status species.

No Surface Disturbance

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Condition of Approval: Surface disturbance is prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the ESA and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.

Modification: The boundaries of the affected area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This condition may be waived if the authorized officer, in consultation with the USFWS, determines that the affected area can be occupied without adversely affecting bald eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected under the ESA.

Timing

Resource: Wildlife – Big Game Winter Range

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within winter range for deer

and elk and crucial antelope winter range. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect crucial deer, elk, and antelope winter range from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains crucial winter range for wildlife.

Timing

Resource: Wildlife – Bighorn Sheep Distribution

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within bighorn sheep distribution areas. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect bighorn sheep during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep distribution.

Timing

Resource: Wildlife – Bighorn Sheep Lambing Areas

Condition of Approval: Surface disturbance is prohibited from April 1 to June 15 within bighorn sheep lambing areas. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect bighorn sheep during the lambing season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep lambing areas. The dates for the timing restriction may be modified if new wildlife use information indicates that the April 1 to June 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep lambing areas.

No Surface Disturbance

Resource: Streams and Riparian/Wetland Areas

Condition of Approval: Surface disturbance is prohibited within 1,000 feet of the channel of ephemeral, intermittent, and perennial streams, or within 1,000 feet of riparian and wetland areas.

Objective: To protect the unique biological and hydrological features associated with riparian and wetland areas and streams.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include streams or riparian areas.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include streams or riparian areas.

Controlled Surface Use

Resource: Soils/Steep Slopes

Condition of Approval: Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with

severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- The site and adjacent areas will be protected from accelerated erosion, such as rilling, gullyng, piping, slope failure, and mass wasting.
- Nearby watercourses will be protected from sedimentation. Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction or reclamation will not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems.

Exception: None.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 30% and greater or severely erosive and/or slumping soils on 20% and greater slopes.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 30% and greater or severely erosive soils on 20% and greater slopes.

No Surface Disturbance

Resource: Soils/Steep Slopes

Condition of Approval: Surface disturbance is prohibited on slopes 40% and greater.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems/failure.

Exception: The authorizing officer may grant an exception to this condition if the operator submits a certified engineer-

ing and reclamation plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. This plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- The site and adjacent areas will be protected from accelerated erosion, such as rilling, gullyng, piping, slope failure, and mass wasting.
- Nearby watercourses will be protected from sedimentation. Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction or reclamation will not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 40% and greater.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 40% and greater.

Controlled Surface Use

Resource: Visual Resource Management (VRM) Class I

Condition of Approval: All surface-disturbing activities, semi-permanent and permanent facilities in VRM Class I will utilize 1) proper site selection; 2) reduction of soil and vegetative disturbance; 3) choice of color; and 4) over time, return the disturbed area to a seamless, natural landscape.

Objective: To reduce the visual contrast on BLM land in the existing landscape.

Exception: None.

Modification: None.

Waiver: None.

Controlled Surface Use

Resource: Visual Resource Management (VRM) Classes II and III

Condition of Approval: All surface-disturbing activities, semi-permanent and permanent facilities in VRM Classes

II and III areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Recreation

Condition of Approval: Surface disturbance is prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas and undeveloped recreation areas receiving concentrated public use. Work-over types of operations would be limited to weekdays, except for emergency situations when operations would be allowed.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified by the authorized officer if the recreation area boundaries are changed.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

Controlled Surface Use

Resource: Historic Properties and/or Cultural Resources

Condition of Approval: The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect

any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Objective: To protect historic properties and/or other cultural resources.

Exception: None.

Modification: None.

Waiver: None.

Alternative D – Oil and Gas Conditions of Approval

In addition to the oil and gas lease stipulations addressed under Alternative A, the following conditions of approval would be applied to applications for permits to drill (APDs) on lease acreage in the Monument. (See Table K.1-2 at the end of this section.)

No Surface Disturbance

Resource: Wildlife – Greater Sage-Grouse Leks

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of sage-grouse leks.

Objective: To protect sage-grouse lek sites necessary for the long-term maintenance of grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting sage-grouse lek sites, or if all lek sites within 1/4 mile of the area have not been used for 5 consecutive years.

Timing

Resource: Wildlife – Greater Sage-Grouse Nesting Zone

Condition of Approval: Surface disturbance is prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect sage-grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to protect nesting activities adjacent to nesting sites for the long-term maintenance of sage-grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain sage-grouse nesting habitat within 2 miles of a lek. The dates for the timing restriction may be modified if new information indicates that the March 1 to June 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains sage-grouse nesting habitat within 2 miles of a lek.

Timing

Resource: Wildlife - Greater Sage-Grouse Crucial Winter Habitat

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect sage-grouse winter habitat from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain winter habitat for sage-grouse. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains winter habitat for sage-grouse.

No Surface Disturbance

Resource: Wildlife – Black-Tailed Prairie Dogs

Condition of Approval:

Objective: To protect prairie dog colonies and habitat for associated species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting black-tailed prairie dogs.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting black-tailed prairie dogs.

No Surface Disturbance

Resource: Wildlife – Designated Sensitive Species

Condition of Approval: Surface disturbance is prohibited within identified crucial habitat and within 1/4 mile of active nests.

Objective: To maintain habitat for special status species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated. Seasonal exceptions may be allowed from August 1 through March 1 (the nonbreeding season for birds) if the authorized officer determines that the proposed activity will not disturb the production potential of special status species.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting special status species.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting special status species.

Timing

Resource: Wildlife - Designated Sensitive Species

Condition of Approval: Surface disturbance is prohibited from March 1 to August 1 within 1/4 mile of active nests.

Objective: To maintain habitat for special status species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the production potential of designated sensitive species.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting the production potential of designated sensitive species.

No Surface Disturbance

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Condition of Approval: Surface disturbance is prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years and within riparian area nesting habitat.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the ESA and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.

Modification: The boundaries of the affected area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This condition may be waived if the authorized officer, in consultation with the USFWS, determines that the affected area can be occupied without adversely affect-

ing bald eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected under the ESA.

Timing

Resource: Wildlife – Big Game Winter Range

Condition of Approval: Surface disturbance is prohibited from December 1 to May 15 within winter range for deer and elk and crucial antelope winter range. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect crucial deer, elk, and antelope winter range from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to May 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains crucial winter range for wildlife.

Timing

Resource: Wildlife – Bighorn Sheep Distribution

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within bighorn sheep distribution areas. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect bighorn sheep during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep. The dates for the timing restriction may be modified if new wildlife use

information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep distribution.

No Surface Disturbance

Resource: Wildlife – Bighorn Sheep Lambing Areas

Condition of Approval: Surface disturbance is prohibited within bighorn sheep lambing areas. This condition does not apply to the operation and maintenance of production facilities.

Objective: To protect bighorn sheep and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep lambing areas.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep lambing areas.

No Surface Disturbance

Resource: Streams and Riparian/Wetland Areas

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of the channels of ephemeral, intermittent, and perennial streams, or within 1/4 mile of the outer margins of riparian and wetland areas.

Objective: To protect the unique biological and hydrological features associated with riparian and wetland areas.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include streams or riparian/wetland areas.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include streams or riparian/wetland areas.

Controlled Surface Use

Resource: Soils/Steep Slopes

Condition of Approval: Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- The site and adjacent areas will be protected from accelerated erosion, such as rilling, gullying, piping, slope failure, and mass wasting.
- Nearby watercourses will be protected from sedimentation. Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction or reclamation will not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems.

Exception: None.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 30% and greater or severely erosive and/or slumping soils on 20% and greater slopes.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 30% and greater or severely erosive and/or slumping soils on 20% and greater slopes.

No Surface Disturbance

Resource: Soils/Steep Slopes

Condition of Approval: Surface disturbance is prohibited on slopes 40% and greater. This applies to locations, facilities and roads.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep

slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems/failure.

Exception: None.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 40% and greater.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 40% and greater.

No Surface Disturbance

Resource: Visual Resource Management (VRM) Class I

Condition of Approval: Surface disturbance is prohibited in VRM Class I areas.

Objective: To reduce the visual contrast on BLM land in the existing landscape.

Exception: None.

Modification: None.

Waiver: None.

Controlled Surface Use

Resource: Visual Resource Management (VRM) Class II

Condition of Approval: All surface-disturbing activities, semi-permanent and permanent facilities in VRM Class II will utilize 1) proper site selection; 2) reduction of soil and vegetative disturbance; 3) choice of color; and 4) over time, return the disturbed area to a seamless, natural landscape.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Recreation

Condition of Approval: Surface disturbance is prohibited within the line of sight/sound or 300 feet (whichever is

closer) of developed recreation areas and undeveloped recreation areas receiving concentrated public use. Work-over types of operations, like well fracing or maintenance, would be limited to Tuesdays, Wednesdays, and Thursdays.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified by the authorized officer if the recreation area boundaries are changed.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

Controlled Surface Use

Resource: Historic Properties and/or Cultural Resources

Condition of Approval: The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Objective: To protect historic properties and/or other cultural resources.

Exception: None.

Modification: None.

Waiver: None.

Alternative E - Oil and Gas Conditions of Approval

Under Alternative E, surface occupancy and use would be prohibited on all 12 West HiLine oil and gas leases. This would include the entire leasehold (both in and outside of the Monument).

The following conditions of approval would apply to the 31 non-West HiLine oil and gas leases (only the lease acreage in the Monument). (See Table K.1-2 at the end of this section.)

No Surface Disturbance

Resource: Wildlife – Greater Sage-Grouse Leks

Condition of Approval: Surface disturbance is prohibited within 2 miles of sage-grouse leks.

Objective: To protect sage-grouse lek sites necessary for the long-term maintenance of grouse populations in the area.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife – Greater Sage-Grouse Nesting Zone

Condition of Approval: Surface disturbance is prohibited within 2 miles of sage-grouse leks.

Objective: To protect sage-grouse nesting habitat from disturbance in order to maximize annual production of young, and to protect nesting activities adjacent to nesting sites for the long-term maintenance of sage-grouse populations in the area.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife - Greater Sage-Grouse Crucial Winter Habitat

Condition of Approval: Surface disturbance is prohibited within crucial winter habitat for sage-grouse.

Objective: To protect sage-grouse winter habitat from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife – Black-Tailed Prairie Dogs

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of prairie dog towns.

Objective: To protect prairie dog colonies and habitat for associated species.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife – Designated Sensitive Species

Condition of Approval: Surface disturbance is prohibited within identified crucial habitat and within 1/2 mile of active nests.

Objective: To maintain habitat for designated sensitive species.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Condition of Approval: Surface disturbance is prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years and within riparian area nesting habitat.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the ESA and the Montana Bald Eagle Management Plan.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife – Big Game Winter Range

Condition of Approval: Surface disturbance is prohibited within crucial winter range for elk, mule deer, and antelope.

Objective: To protect crucial elk, mule deer, and antelope winter range from disturbance and to facilitate long-term maintenance of wildlife populations.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife – Bighorn Sheep Distribution

Condition of Approval: Surface disturbance is prohibited within bighorn sheep distribution areas.

Objective: To protect bighorn sheep and to facilitate long-term maintenance of wildlife populations.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Wildlife – Bighorn Sheep Lambing Areas

Condition of Approval: Surface disturbance is prohibited within 1 mile of bighorn sheep lambing areas, if such activities would adversely impact lamb survival.

Objective: To protect bighorn sheep and to facilitate long-term maintenance of wildlife populations.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Streams and Riparian/Wetland Areas

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of the channels of ephemeral, intermittent, and perennial streams, or within 1/4 mile of the outer margins of riparian and wetland areas.

Objective: To protect the unique biological and hydrological features associated with streams and riparian/wetland areas.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Soils/Steep Slopes

Condition of Approval: Surface disturbance is prohibited on slopes 20% and greater.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or reclamation failure.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Visual Resource Management (VRM) Classes I and II

Condition of Approval: Surface disturbance is prohibited in VRM Class I and II areas.

Objective: To reduce the visual contrast on BLM land in the existing landscape.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Recreation

Condition of Approval: Surface disturbance is prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas and undeveloped recreation areas receiving concentrated public use. Work-over types of operations, like well fracing or maintenance, would be limited to Tuesdays, Wednesdays, and Thursdays.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: None.

Modification: None.

Waiver: None.

Controlled Surface Use

Resource: Historic Properties and/or Cultural Resources

Condition of Approval: The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Objective: To protect historic properties and/or other cultural resources.

Exception: None.

Modification: None.

Waiver: None.

Alternative F (Preferred Alternative) - Oil and Gas Conditions of Approval

In addition to the oil and gas lease stipulations addressed under Alternative A, the following conditions of approval would be applied to applications for permits to drill (APDs) on lease acreage in the Monument. (See Table K.1-2 at the end of this section.)

No Surface Disturbance

Resource: Wildlife – Greater Sage-Grouse Leks

Condition of Approval: Surface disturbance is prohibited within 1/4 mile of sage-grouse leks.

Objective: To protect sage-grouse lek sites necessary for the long-term maintenance of grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified (decreased or increased) if the authorized officer determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites or if the authorized officer determines a greater distance is needed to protect the lek based on new research and studies.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting sage-grouse lek sites, or if all lek sites within 1/4 mile of the area have not been used for 5 consecutive years.

Timing

Resource: Wildlife – Greater Sage-Grouse Nesting Zone

Condition of Approval: Surface disturbance is prohibited from March 1 to June 15 in sage-grouse nesting habitat within 2 miles of a lek. Travel on identified designated roads may include these timing restrictions or limited site visits.

Objective: To protect sage-grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to protect nesting activities adjacent to nesting sites for the long-term maintenance of sage-grouse populations in the area.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain sage-grouse nesting habitat within 2 miles of a lek. The dates for the timing restriction may be modified if new information indicates that the March 1 to June 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains sage-grouse nesting habitat within 2 miles of a lek.

Timing

Resource: Wildlife - Greater Sage-Grouse Crucial Winter Habitat

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within crucial winter habitat for sage-grouse. This condition does not apply to the operation and maintenance of production facilities. Travel on identified designated roads may include these timing restrictions or limited site visits.

Objective: To protect sage-grouse crucial winter habitat from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain winter habitat for sage-grouse. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains winter habitat for sage-grouse.

Controlled Surface Use

Resource: Wildlife – Black-Tailed Prairie Dogs

Condition of Approval: Surface disturbance may be controlled or excluded within 1/4 mile of prairie dog towns, if an activity would adversely impact prairie dogs and/or associated species.

Objective: To protect prairie dog colonies and habitat for associated species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting black-tailed prairie dogs.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting black-tailed prairie dogs.

Controlled Surface Use

Resource: Wildlife – Designated Sensitive Species

Condition of Approval: Surface disturbance may be controlled or excluded within 1/4 mile of the activity or the activity delayed 90 days within identified crucial habitat or active nests.

Objective: To maintain habitat for designated sensitive species.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated. Seasonal exceptions may be allowed from August 1 through March 1 (the nonbreeding season for birds) if the authorized officer determines that the proposed activity will not disturb the production potential of designated sensitive species.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting designated sensitive species.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting designated sensitive species.

Timing

Resource: Wildlife - Ferruginous Hawk

Condition of Approval: Surface disturbance is prohibited from March 1 to August 1 within 1/2 mile of active ferruginous hawk nest sites.

Objective: To maintain the production potential of ferruginous hawk nest sites.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated. Seasonal exceptions may be allowed from August 1 through March 1 (the nonbreeding season) if the authorized officer determines that the proposed activity will not disturb the production potential of ferruginous hawk nest sites.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the production potential of ferruginous hawk nest sites.

Waiver: This condition may be waived if the authorized officer determines that the affected area can be occupied without adversely affecting the production potential of ferruginous hawk nest sites.

No Surface Disturbance

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Condition of Approval: Surface disturbance is prohibited within 1/2 mile of known bald eagle nest sites that have been active within the past 7 years, if disturbance could cause nest abandonment or failure.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the ESA and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.

Modification: The boundaries of the affected area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This condition may be waived if the authorized officer, in consultation with the USFWS, determines that the affected area can be occupied without adversely affecting bald eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected under the ESA.

Timing

Resource: Wildlife – Big Game Winter Range

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within winter range for elk and deer and crucial antelope winter range. Travel on identified designated roads may include these timing restrictions or limited site visits.

Objective: To protect crucial deer, elk, and antelope winter range from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains crucial winter range for wildlife.

Timing

Resource: Wildlife – Bighorn Sheep Distribution

Condition of Approval: Surface disturbance is prohibited from December 1 to March 31 within bighorn sheep distribution areas. Travel on identified designated roads may include these timing restrictions or limited site visits.

Objective: To protect bighorn sheep during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep distribution.

Timing

Resource: Wildlife – Bighorn Sheep Lambing Areas

Condition of Approval: Surface disturbance is prohibited from April 1 to June 15 within bighorn sheep lambing areas. Travel on identified designated roads may include these timing restrictions or limited site visits.

Objective: To protect bighorn sheep during the lambing season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified if the authorized officer determines that portions of the area no longer contain bighorn sheep lambing areas. The dates for the timing restriction may be modified if new wildlife use information indicates that the April 1 to June 15 dates are not valid for the area.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains bighorn sheep lambing areas.

No Surface Disturbance

Resource: Streams and Riparian/Wetland Areas

Condition of Approval: Surface disturbance is prohibited within 500 feet of the channels of ephemeral, intermittent, and perennial streams, or within 500 feet of the outer margins of riparian and wetland areas.

Objective: To protect the unique biological and hydrological features associated with streams and riparian/wetland areas.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated. An exception may also be allowed when the surface of the site is 20 feet higher than the channel (out of the floodplain).

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include riparian/wetland areas.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include streams or riparian/wetland areas.

Controlled Surface Use

Resource: Soils/Steep Slopes

Condition of Approval: Prior to surface disturbance on slopes 30% and greater or on slopes 20% and greater with severely erosive and/or slumping soils, a certified engineering and reclamation plan must be approved by the authorized officer. This plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- The site and adjacent areas will be protected from accelerated erosion, such as rilling, gullyng, piping, slope failure, and mass wasting.
- Nearby watercourses will be protected from sedimentation. Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction or reclamation will not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems.

Exception: None.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 30% and greater or severely erosive and/or slumping soils on 20% and greater slopes.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 30% and greater or severely erosive and/or slumping soils on 20% and greater slopes.

No Surface Disturbance

Resource: Soils/Steep Slopes

Condition of Approval: Surface disturbance is prohibited on slopes 40% and greater.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, and/or having excessive reclamation problems/failure.

Exception: The authorizing officer may grant an exception to this condition for short distances (less than 300 feet) for pipelines and access roads if the operator submits a certified engineering and reclamation plan that clearly demonstrates impacts from the proposed actions are acceptable or can be adequately mitigated. This plan must include and demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- The site and adjacent areas will be protected from accelerated erosion, such as rilling, gullying, piping, and slope failure and mass wasting.
- Nearby water sources will be protected from sedimentation. Water quality and quantity will be in conformance with state and federal water quality laws.
- Site-specific analysis of soil physical, chemical and mechanical (engineering) properties and behavior will be conducted.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction or reclamation will not be allowed when soils are frozen.

The operator must also provide an evaluation of past practices on similar terrain and be able to demonstrate success under similar conditions.

Modification: The area affected by this condition may be modified by the authorized officer if it is determined that portions of the area do not include slopes 40% and greater.

Waiver: This condition may be waived by the authorized officer if it is determined that the affected area does not include slopes 40% and greater.

No Surface Disturbance

Resource: Visual Resource Management (VRM) Class I

Condition of Approval: Surface disturbance is prohibited in VRM Class I areas.

Objective: To reduce the visual contrast on BLM land in the existing landscape.

Exception: None.

Modification: None.

Waiver: None.

Controlled Surface Use

Resource: Visual Resource Management (VRM) Classes II, III and IV

Condition of Approval: All surface-disturbing activities, semi-permanent and permanent facilities in VRM Classes II, III and IV will utilize 1) proper site selection; 2) reduction of soil and vegetative disturbance; 3) choice of color; and 4) over time, return the disturbed area to a seamless, natural landscape.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

No Surface Disturbance

Resource: Recreation

Condition of Approval: Surface disturbance is prohibited within the line of sight/sound or 300 feet (whichever is closer) of developed recreation areas (Level 1, 2, and 3 sites) and undeveloped recreation areas receiving concentrated public use. Work-over types of operations would be limited to weekdays, except for emergency situations when operations would be allowed.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: An exception to this condition may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the affected area may be modified by the authorized officer if the recreation area boundaries are changed.

Waiver: This condition may be waived if the authorized officer determines that the affected area no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

Controlled Surface Use

Resource: Historic Properties and/or Cultural Resources

Condition of Approval: The affected area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Objective: To protect historic properties and/or other cultural resources.

Exception: None.

Modification: None.

Waiver: None.

Attachment K.1-1 Oil and Gas Lease Stipulations (Form 3109-1 and Standard Stipulations)

Esthetics – To maintain esthetic values, all surface-disturbing activities, semi-permanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the surface management agency.

Erosion Control – Surface-disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads.

Controlled or Limited Surface Use Stipulation – This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the Bureau of Land Management with concurrence of the surface management agency. Distances and/or time periods may be made less restrictive depending on the actual onground conditions. The prospective lessee should contact the surface management agency for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled, or if absolutely necessary, excluded. Use or occupancy will be restricted only when the Bureau of Land Management and/or the surface management agency demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the surface management agency has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.

500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.

500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1 to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30.

300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.

Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off-road vehicle designations.

On slopes over 30%, or 20% on extremely erodable or slumping soils.

Notice for Cultural and Paleontological Resources – The federal surface management agency is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the surface management agency, shall:

1. Contact the appropriate surface management agency to determine if a site-specific cultural resource inventory is required. If an inventory is required, then;
2. Engage the services of a cultural resource specialist acceptable to the surface management agency to conduct a

cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the surface management agency for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.

3. Implement mitigation measures required by the surface management agency. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as testing salvage and recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the surface management agency, surface occupancy on that area must be prohibited.

The lessee or operator shall immediately bring to the attention of the surface management agency any cultural or paleontological resources discovered as a result of approved operations under this lease, and not disturb such discoveries until directed to proceed by the surface management agency.

Notice for Endangered or Threatened Species – The surface management agency is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1983 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the authorized officer of the surface management agency that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

Attachment K.1-2 Oil and Gas Lease Stipulations (Forms 3100-11 and 3100-28)

The lessee hereby agrees the following stipulations are part of the lease terms:

- A. At least two weeks prior to entry on the land for purposes of field operations, including seismic work, the lessee must advise the District Manager, Bureau of Land Management and after consultation prepare a "Surface Management Plan." The final plan shall be prepared in duplicate, including maps, for approval by the District Manager. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, air and water pollution, unnecessary damages to the surface vegetation and other resources of the United States and to provide for the restoration of the land surface and vegetation. The plan shall contain all such provisions as the Bureau of Land Management may deem necessary to maintain proper management of the lands and resources within the operating area.

The plan will contain the following items:

1. The location, construction specifications, maintenance program, and estimated use by the lessee, his employees and agents, of all access and work roads.
 2. The methods to be used in the operations, including disposal of waste material.
 3. The size and location of all structures and facilities to be constructed.
 4. The location and size of areas upon which vegetation will be destroyed and/or soil laid bare and the steps which will be taken to prevent and control soil erosion thereon, including but not limited to the proposed program for rehabilitation and revegetation of these disturbed lands both during and upon cessation of operations.
 5. The steps which will be taken to prevent water and air pollution.
 6. The character, amount, and time of use of explosives or fire, including safety precautions which will be taken during their use.
 7. Provisions for protecting permitted livestock and wildlife.
- B. Prior to seismic field operations, if the lessee does not have appropriate bonding coverage, it will be necessary for him to furnish an Oil and Gas Exploration Bond (43 CFR sec. 3104.9).

If later operations require departure from or additions to the approved plan, these revisions or amendments, together with justification statement for proposed revisions, will be submitted to the District Manager for approval.

Any and all operations conducted in advance of approval of an original, revised or amended operating plan, or which are not in accord with an approved plan, constitute a violation of the terms of this lease and the Bureau of Land Management reserves the right to close down the operation until such corrective action, as is deemed necessary, is taken by the lessee.

- C. No occupancy of the surface of the areas described in items 1 through 4 below is authorized by this lease. The lessee is, however, authorized to employ directional drilling to develop the mineral resources under these areas provided that such drilling or other works will not disturb the surface area or otherwise interfere with their use by the Bureau of Land Management. It is understood and agreed that the use of these areas for public purposes is superior to any other use. Areas to be excluded from direct drilling occupancy are:
1. Within 660 feet on either side of the right-of-way boundary of any and all improved roads and/or highways within the lease areas.
 2. Within 100 feet on either side of the centerline of any and all trails within the lease area.

3. Within 300 feet of the normal high water line of any and all lakes, ponds, and reservoirs located within the lease area.
4. Within 300 feet of any and all springs or water wells within the lease area.

The distances in subparagraphs 1, 2, 3, and 4, immediately above, may be reduced when specifically agreed to in the "Surface Management Plan."

No access or work trail, earth cut or fill, structure development, facility or any other improvement of a permanent nature will be permitted if it can be viewed from the high water surface of the Missouri River.

Attachment K.1-3 – Oil and Gas Lease Stipulations (Form 3100-24)

1. Notwithstanding any provision of this lease to the contrary, any drilling, construction or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment (hereinafter called "surface disturbing operations"), conducted by lessee, shall be subject, as set forth in this stipulation, to the prior approval of such operation by the Area Oil and Gas Supervisor, in consultation with the appropriate surface management agency and to such reasonable conditions not inconsistent with the purposes for which this lease is issued, as the Supervisor may require to protect the surface of the leased lands and the environment.
2. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, the lessee shall submit for approval two copies of a map and explanation of the nature of the anticipated activity and surface disturbance.

An environmental analysis will be made by the Geological Survey, in consultation with the appropriate surface management agency, for the purpose of insuring proper protection of the surface, the natural resources, the environment, existing improvements and for assuring timely reclamation of disturbed lands.

3. Upon completion of said environmental analysis, the Area Oil and Gas Supervisor shall notify lessee of the conditions, if any, to which the proposed surface disturbing operations will be subject. Said conditions may relate to any of the following:
 - (a) The location of drilling or other exploratory or developmental operations or the manner in which they are conducted;
 - (b) The type of vehicles that may be used and the areas in which they may be used; and
 - (c) The manner or location in which the improvements, such as roads, buildings, pipelines or other improvements are to be constructed.

Table K.1-2 Oil and Gas Leases in the Monument and Affected Resources (Acres)															
MTM Lease No.	Lease Acreage in the Monument	Greater Sage-Grouse			Black Tailed Prairie Dogs	Sensitive Species		Deer and Elk Winter Range	Antelope Crucial Winter Range	Bighorn Sheep Dist.	Bighorn Sheep		Streams		
		1/4 Mile Lek	2 Miles Nesting Area	Crucial Winter Habitat		1/4 Mile	1/2 Mile				Lambing Area	1 Mile Buffer	500'	1,000'	1/4 Mile
West HiLine Leases															
084559	1,880		102	216				620	494				464	870	1,103
084560	134		113	119					130				29	67	90
087212	122		23						122				44	90	110
087658	485							485		485	485		82	145	192
089082	1,131		496	106					1,108				223	448	598
089452	800				72			788		575	408	655	239	416	498
089469	640		542					634					237	414	511
089473	1,240							1,227		606	5	769	400	686	828
089474	80						15	62	8					2	3
089475	1,280							717	473				371	710	887
089476	1,120							1,039	226						
089482	1,416					3	56	1,414		1,414	161	1,283	214	491	672
Subtotal	10,328		1,276	441	72	3	71	6,986	2,561	3,080	1,059	3,192	2,303	4,339	5,492
Non-West HiLine Leases															
1565	2,560	31	2,529					1,945					536	1,048	1,397
1568	2,320		951					198	1,539				569	1,098	1,394
1578	575		444					561					271	453	519
1885	40														
1886	1,920								56				628	1,045	1,201
1888	480												121	218	262
1903	1,360								500				125	259	370
1903-B	320		2						130				117	201	234

MTM Lease No.	Lease Acreage in the Monument	Greater Sage-Grouse			Black Tailed Prairie Dogs	Sensitive Species		Deer and Elk Winter Range	Antelope Crucial Winter Range	Bighorn Sheep Dist.	Bighorn Sheep			Streams	
		1/4 Mile Lek	2 Miles Nesting Area	Crucial Winter Habitat		1/4 Mile	1/2 Mile				Lambing Area	1 Mile Buffer	500'	1,000'	1/4 Mile
1914	200						28	200							
2060	640							640		471	321	521	66	130	173
2061	640							637		528	210	611	113	189	242
13816	2,533							2,529	943	1,545		197	32	129	236
13818	2,532					1	58	2,528			1,036	2,196	401	734	933
13821-A	1,099					122	396	1,099		1,099	1,099	1,099			1
13827	1,156							1,154		1,099	531	948	400	638	762
16098	1,240						1	1,233		1,154			379	750	939
16102	1,506		49				24	1,266	244				423	753	938
16103	13		7						13						
16327	80		77					77							
16458	688		87						126				80	161	217
16461	2,547					125	460	2,547					634	1,129	1,422
16617	490					4	64			441	110	378	129	258	308
16618	320		320					320					156	255	276
16939	2,530					125	480	2,054	37	318			590	1,112	1,397
17376	40		32					40					2	23	38
18274	1,367					155	606			1,367	1,037	1,367	120	249	336
18282	851									851	741	851	210	386	483
18283	1,240									1,223	100	1,133	374	662	767
19446	110							109							
53751	680									672	225	661	21	77	152
89460	400									396	94	396	121	214	262
Subtotal	32,477	31	4,498			532	2,117	19,137	3,588	11,164	5,504	10,358	6,618	12,171	15,259
Total	42,805	31	5,774	441	72	535	2,188	26,123	6,149	14,244	6,563	13,550	8,921	16,510	20,751

Table K.1-2 (continued)																		
Oil and Gas Leases in the Monument and Affected Resources (acres)																		
MTM Lease No.	Lease Acreage in the Monument	Soils/Slope			Alternatives A and B VRM Class				Alternative C VRM Class			Alternatives D and E VRM Class			Alternative F VRM Class			
		20% and >	K-.32 and >	40% and >	I	II	III	IV	I	II	III	I	II	I	II	III	IV	
West HiLine Leases																		
084559	1,880	170	170	20	1	1,784		96		1,784	96		1,880		1,784	39	57	
084560	134					38		96		38	96		134		38		96	
087212	122							122			122		122			94	28	
087658	485	323	238	164	61			485	16	469		16	469	16	469			
089082	1,131	19	19			19		1,112		19	1,112		1,131		19	529	583	
089452	800	454	449	315	223			800		0	800		800			638	162	
089469	640	197	197	35	1	588		52		640			640		640			
089473	1,240	788	384	468	210			1,240		1,180	60		1,240		1,180		60	
089474	80	6	6	1		80				80			80		80			
089475	1,280	323	270	109	26	1,280				1,280			1,280		1280			
089476	1,120	124	124	25	4			1,120		624	496		1,120		624	220	276	
089482	1,416	995	516	546	227	92		1,324	92	1,324		92	1,324	92	1324			
Subtotal	10,328	3,399	2,373	1,683	753	92		6,447	108	7,438	2,782	108	10,220	108	7,438	1,520	1,26	
Non West HiLine Leases																		
1565	2,560	275	275	69	12	2,250		310		2,264	296		2,560		2,264	296		
1568	2,320	126	123	13		1,319		1,001		1,319	1001		2,320		1,319	576	425	
1578	575	220	220	82	19	147		428		147	428		575		147	428		
1885	40	14	14	7		40				40			40		40			
1886	1,920	439	439	92	14	1,920				1,920			1,920		1,920			
1888	480	69	69	6		480				480			480		480			
1903	1,360	166	166	14		1,360				1,360			1,360		1360			
1903-B	320	117	117	32	11	320				320			320		320			

MTM Lease No.	Lease Acreage in the Monument	Soils/Slope					Alternatives A and B VRM Class				Alternative C VRM Class			Alternatives D and E VRM Class		Alternative F VRM Class				
		20% and >		K- .32 and >	30% and >	40% and >	I	II	III	IV	I	II	III	I	II	I	II	III	IV	
1914	200	1	1					200												
2060	640	298	298							640	39	439	162	39	601	39	439			162
2061	640	401	401							640	150	437	53	150	490	150	437			53
13816	2,533	746	734							2,533		1,965	568		2,533		1,965	68		500
13818	2,532	1,191	1,191							2,532	860	926	746	860	1,672	860	926	109		637
13821-A	1,099	767	767							1,029	71	1,028		71	1,028	71	1028			
13827	1,156	757	757							1,143	13	1,143		13	1,143	13	1143			
16098	1,240	342	342					1,081		159	392	710	138	392	848	392	710	1		137
16102	1,506	419	417					297		1,209		967	539		1,506		967	539		
16103	13							13				13			13		13			
16327	80	46	46					80				80			80		80			
16458	688	135	135					688				688			688		688			
16461	2,547	1,073	1,073							2,547		2,119	428		2,547		2,119	393		35
16617	490	262	131					490				490			490		490			
16618	320	220	220					320				320			320		320			
16939	2,530	916	916					2,190		340		2,487	43		2,530		2,487			43
17376	40	22	22					40				40			40		40			
18274	1,367	859	408					1,058			309	1,058		309	1,058	309	1058			
18282	851	537	248					388			463	388		463	388	463	388			
18283	1,240	655	655					866			374	866		374	866	374	866			
19446	110	26	16							110			110		110			110		
53751	680	323	323					523			157	523		157	523	157	523			
89460	400	194	163					400				400			400		400			
Subtotal	32,477	11,616	10,687					16,470		14,621	2,828	25,137	4,512	2,828	29,649	2,828	25,137	2,520		1,992
Total	42,805	15,015	13,060					20,259		21,068	2,936	32,575	7,294	2,936	39,869	2,936	32,575	4,040		3,254

Appendix K.2

Oil and Gas Board Orders

Table K.2-1 Leroy Field Board Orders

<i>Board Order (Approval Date)</i>	<i>Area Covered by Order</i>	<i>Geologic Formation Covered by Order</i>	<i>Spacing or Exception to State Spacing Regulations</i>
1975-19 (4-17-1975)	T23N-R18E Sections 1-36 T23N-R19E Sections 1-36 T24N-R18E Sections 7-36 T24N-R19E Sections 7-36	Judith River Eagle-Virgelle	Leroy Field Delineated at 320 acre spacing.
1975-39 (10-16-1975)	T24N-R19E NENE Section 21	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1978-42 (8-3-1978)	T24N-R18E SWNW Section 30	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1979-11 (2-15-1979)	T24N-R19E NENE Section 21	Judith River Eagle-Virgelle	Well Location Re-survey
1979-56 (8-2-1979)	T24N-R19E NWNW Section 26	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1980-72 (7-31-1980)	T23N-R18E SWSW Section 3	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1981-95 (7-31-1981)	T24N-R18E SESW Section 11	Judith River Eagle-Virgelle	Exception Location to Board Orders 1975-19 and 1980-72
1985-43 (7-24-1985)	T23N-R19E NWSW Section 28	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1987-31 (8-13-1987)	T24N-R20E Sections 1-36 T25N-R20E Sections 1-36 T26N-R20E Sections 18-36 T25N-R21E Sections 6, 7, 17, 18, 19, 30, and 31 T24N-R21E Section 7	Judith River Eagle-Virgelle	Enlarge the Leroy Field
1989-68 (11-30-1989)	Certain Fields within the State of Montana including Leroy	Not Applicable	Issuance of Drilling Permits at Locations Authorized by Field Rules
1993-57 (10-14-1993)	T23N-R19E SESE Section 20	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1994-44 (7-28-1994)	T23N-R19E SWSW Section 21	Judith River Eagle-Virgelle	Exception Location to Board Order 1975-19
1998-76 (9-3-1998)	T25N-R20E SWSE Section 6	Judith River Eagle-Virgelle	Exception Location to Board Orders 1975-19
2000-18 (2-10-2000)	T25N-R20E SESW Section 6	Judith River Eagle-Virgelle	Exception Location to Board Orders 1975-19 and 1987-31
2000-61 (5-18-2000)	T25N-R20E SESW Section 6	Judith River Eagle-Virgelle	Exception Location to Board Orders 1975-19, 1987-31 and 2000-18

Table K.2-2
Sawtooth Mountain Field Board Orders

(Note – The below orders are not all-inclusive for the Sawtooth Mountain Field because only a small portion of the field is contained within the Monument.)

<i>Board Order (Approval Date)</i>	<i>Area Covered by Order</i>	<i>Geologic Formation Covered by Order</i>	<i>Spacing or Exception to State Spacing Regulations</i>
1976-45 (7-15-1976)	T26N-R20E Sections 1-8 T27N-R18E Sections 1-3, 10-16, 21, 22, 27, and 28 T27N-R19E Sections 3-18, 20 and 21 T27N-R19E Sections 5-9, 15-22, 26-36 T28N-R19E Sections 31-34	Judith River Eagle-Virgelle	Sawtooth Mountain Field Delineated at 640 acre spacing. 3 Exception Locations included; however, they are outside the Monument
2002-199 (12-5-2002)	T26N-R20E Section 2	Judith River Eagle-Virgelle	Increased well density and exception to Board Order 1976-45 allowing three additional wells in Section 2, but not closer than 660 feet to spacing unit boundary for a total of four wells. Order implies to keep 640 acre spacing.
2004-111 (4-1-2004)	T26N-R20E Section 1	Judith River Eagle-Virgelle	Increased well density and exception to Board Order 1976-45 allowing two additional wells in Section 1, but not closer than 660 feet to spacing unit boundary for a total of 3 wells. Order implies to keep 640 acre spacing.
2004-161 (5-20-2004)	T26N-R20E Section 3	Judith River Eagle-Virgelle	Increased well density and exception to Board Order 1976-45 allowing two additional wells in Section 3, but not closer than 660 feet to spacing unit boundary for a total of 3 wells. Order implies to keep 640 acre spacing.

Appendix K.3

Reasonable Foreseeable Development

Summary

The Reasonably Foreseeable Development (RFD) is a long-term projection of oil and gas exploration, development, production, and reclamation activity in the Upper Missouri River Breaks National Monument. The RFD study area lies in the eastern portion of the Monument and includes the 43 federal leases in the Monument. The RFD projects a baseline scenario of activity assuming all potentially productive areas can be open under standard lease terms and conditions, except those areas designated as closed by the Proclamation. It provides basic information that is analyzed in the various alternatives.

The RFD study area lies in northcentral Montana, approximately 60 miles north of Lewistown, Montana, and 38 miles south of Chinook. The area contains three producing gas fields with wells that are completed in the Judith River or Eagle Formations. The greater portion of the study area is characterized by steep river Breaks country with plateaus and narrow ridges caused by erosion.

Applications for Permits to Drill (APDs) have been received by the BLM from three federal lease holders in the study area. One APD was received from Klabzuba Oil and Gas, Inc., a U.S. firm based in Denver, Colorado and is pending approval based on the Monument Resource Management Plan (RMP). Two APDs were received from Macum Energy, Inc.: one APD is approved and remains undrilled and the other APD is pending approval based on a lawsuit regarding the future of three federal leases issued under the West HiLine RMP. One APD was received from Devon Louisiana Corp and is pending approval based on the Monument RMP. The four planned wells would be drilled from the following locations:

Devon Federal 9-7

SWNE Section 9, T26N R20E

Klabzuba Federal 31-25-20B

SENE Section 31, T25N R20E

Macum Federal 42-30*

SENE Section 30, T25N R20E

Macum Federal 23-10

NESW Section 10, T25N R20E

* APD Approved May 10, 2002 under the Macum, Klabzuba, Ocean Environmental Assessment

The wells (see Figure K.3-1) would develop known gas resources in three exploration/production areas within the

study area. The wells would not require the construction of any new roads. If the wells are productive, they would require the installation of 3.7 miles of new pipeline to connect into existing pipelines.

If the wells are productive, typical production facilities for wells in the study area include: meter shed (8 ft long x 8 ft tall x 5 ft wide building), well head (can be enclosed within the meter shed depending on the operation); gas meter run (enclosed within the meter shed); glycol barrel (can be enclosed within the meter shed); small water separator (normally enclosed within the meter shed depending on the well and the operation); water disposal pits (sized depending on the operation but usually 10 ft x 10 ft x 6 ft); and gas compressor (compressors typically do not accompany each well). The size and horsepower of the compressor depends on the operation and its application, which further depends on well rates, well pressures, and the line size of the compressor (one gas compressor could service 8-12 wells). Currently, no gas compressors are located within the study area; however, a skid-mounted 42 HP compressor has been authorized by the State of Montana on a private well near the Monument (the compressor has not been installed as of the date of this document).

The study area is also being addressed because of the proposed activity and its potential for future exploration and development on lands where the federal leases exist. The federal leases within the study area are considered to have moderate and high potential for oil and gas occurrence. Occurrence is based on structural geology and historic activity of the area, and it is further confirmed using well information to identify the extent of reservoirs. The areas considered to have moderate potential are those lands within the study area not having high potential. The areas considered to have high potential are those lands within 18 exploration and development areas where commercial volumes and moderate shows of natural gas were evident at the time of well completion (see Figure K.3-2).

A study and review was conducted to evaluate the geologic potential of the area and to determine the reasonable foreseeable development that could be expected. Of the 18 exploration and development areas it is reasonably foreseeable that natural gas wells could be drilled in 11 of the areas. Based on this information, Table K.3-1 shows the number of RFD wells for each exploration/development area. However, this is prior to considering any resource stipulations or conditions of approval, which is addressed in Chapter 4.

Figure K.3-1

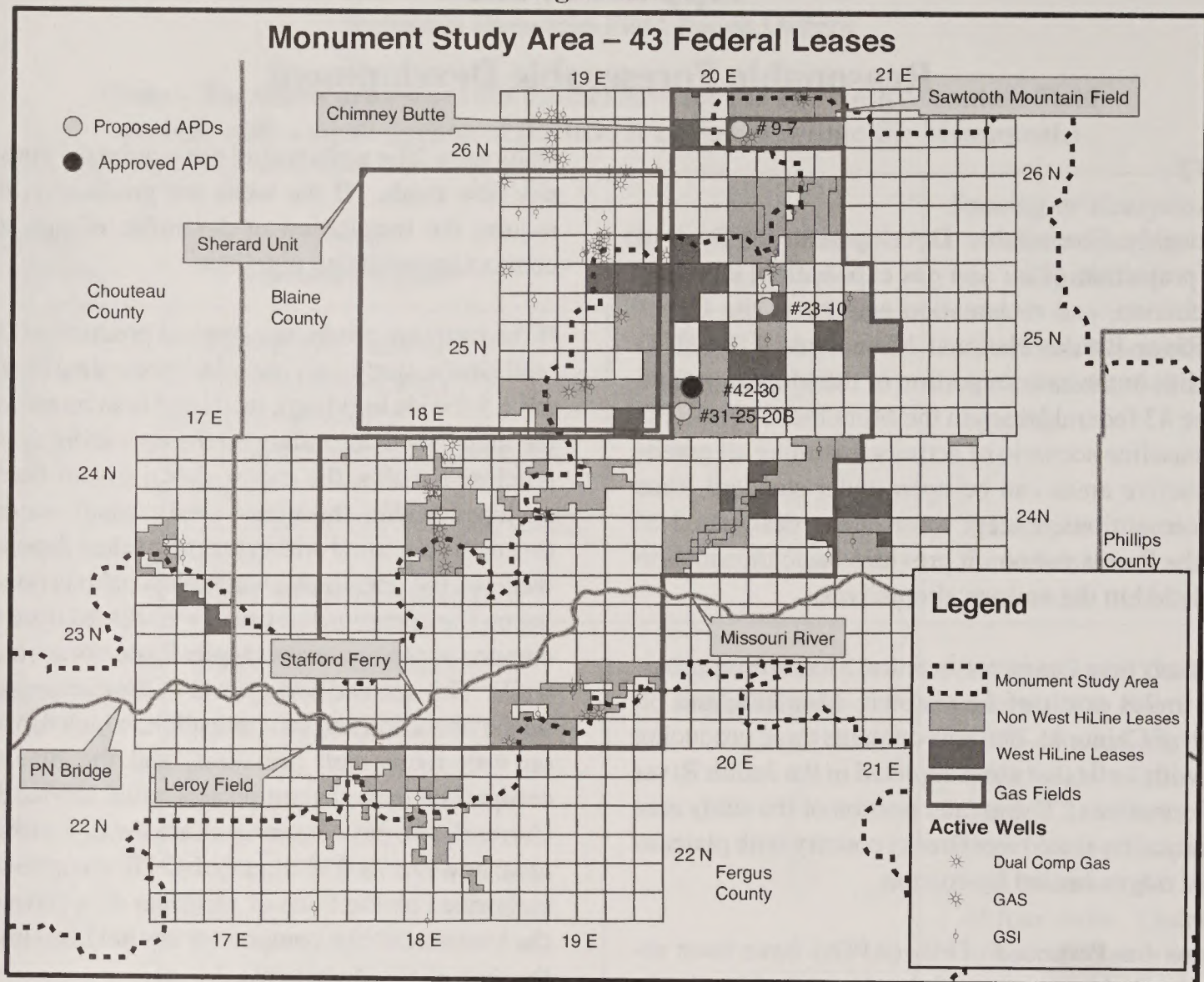


Figure K.3-2

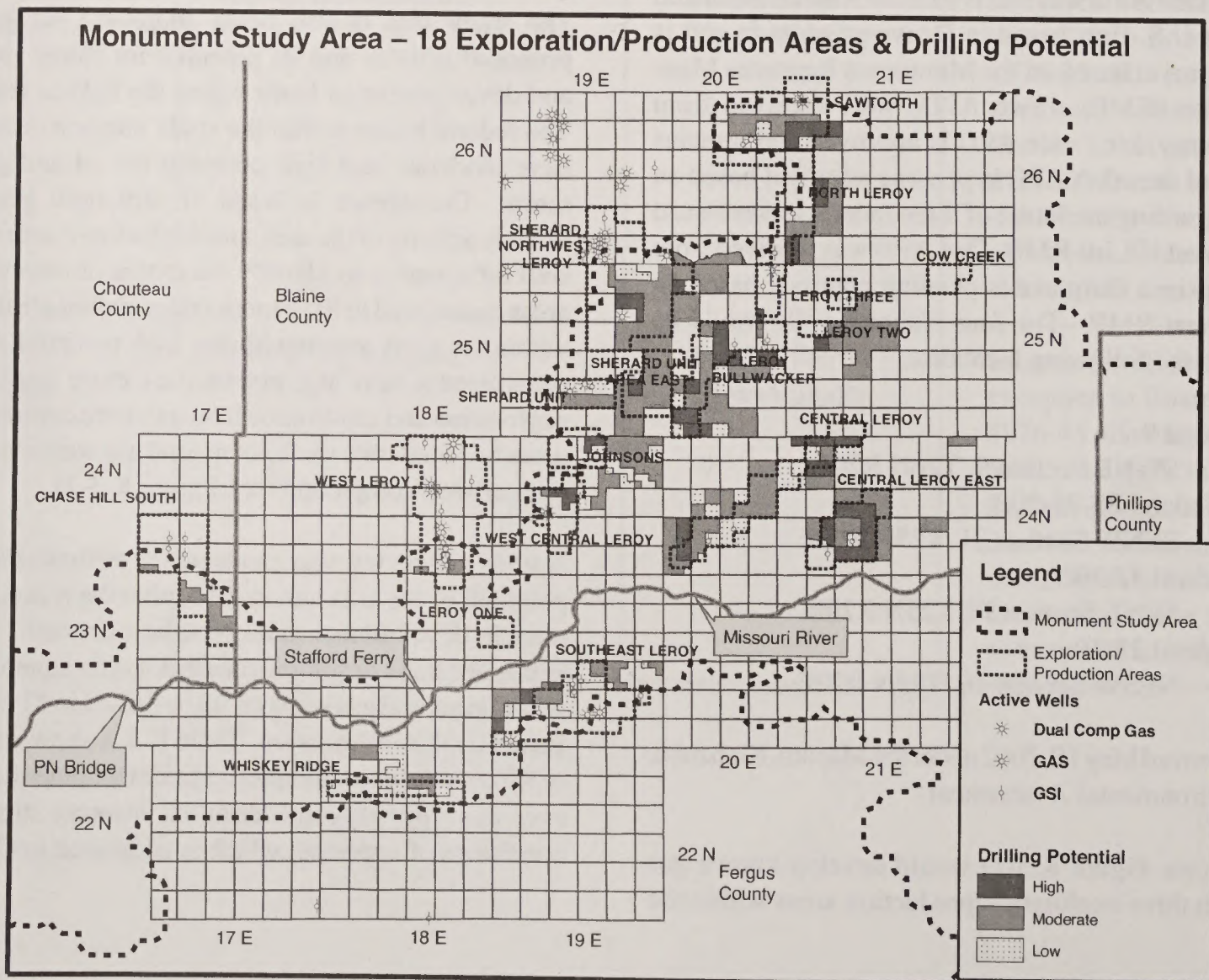


Table K.3-1
Reasonable Foreseeable Development (RFD) Wells by Exploration/Development Area

<i>Exploration/Development Area</i>	<i>Monument Wells</i>	<i>Wells Within 1/2 Mile of the Monument</i>	<i>Total</i>
North Leroy	1	4	5
Central Leroy	6	0	6
Central Leroy East	3	0	3
Leroy Bullwhacker East	6	0	6
Sherard Northwest Leroy	8	7	15
West Leroy	0	1	1
South Sawtooth	4	13	17
Sherard Unit Area East	10	0	10
Southeast Leroy	1	1	2
Chase Hill	2	0	2
Sherard Unit	5	1	6
Total Wells in the 11 Areas	46	27	73

Possible Oil and Gas Operations in the Monument

Geophysical Exploration Methods

Geophysical exploration is a general term used for various indirect exploration methods, the most common being seismic and gravity surveys. Gravitational prospecting detects micro-variations in gravitational attraction caused by the differences in the density of various types of rock through the use of an instrument known as a gravimeter. Data derived from gravity surveys is used to generate anomaly maps, from which faults and general structural trends can be interpreted. Survey measurements are taken at many points along a linear path with a gravimeter. The gravimeter is transported either by backpack, helicopter, or off-road vehicle and data points are located with a Global Positioning System (GPS). Because gravity surveys can be conducted from the air or by a backpacker, surface disturbance is not necessary. However, surface disturbance may occur if off-road use is permitted for the purpose of conducting the survey.

Seismic surveys are the most popular indirect method currently utilized for locating subsurface structures which may contain oil and gas. Seismic prospecting is based on the fact that shock waves (waves similar to those created when a pebble is dropped into a pool of standing water) are reflected, refracted (bent) to varying degrees and travel at different speeds as they pass through different rock types. As the shock wave encounters layers where the lower rock unit causes the waves to travel slower, some of the wave (energy) is reflected upward to surface sensing devices called geophones.

The geophones are connected by ground wire to a data recording truck which stores data on magnetic tape. The time required for the waves to travel from the source of the wave down to a given reflecting rock unit and back to the geophone is related to the depth by multiplying the shock wave velocity by 1/2 the travel time. For different rock types the average velocity is determined from bore hole and core data or must be estimated if no data is available.

Seismic surveys are conducted by sending shock waves, generated by a small explosion or through mechanically beating the ground surface with a thumping or vibrating platform, through the earth's surface.

The thumper and vibrator methods pound or vibrate the ground surface to create a shock wave. Usually, four large trucks are used, each equipped with pads about 4 feet square. The pads are lowered to the ground and the vibrators are electronically triggered from the recording truck. Once information is recorded the trucks move forward a short distance and the process is repeated. Less than 50 square feet of surface area is required to operate the equipment at each recording site.

The small explosive method requires that charges be detonated on the surface or in a drill hole. Holes for the charges are drilled utilizing truck-mounted or portable air drills to bore small-diameter holes to depths of 100 to 200 feet. Generally, 4 to 12 holes are drilled per mile of line and a 50-pound charge of explosives is placed in the hole, covered, and detonated. The created shock wave is recorded by geophones placed in a linear fashion on the surface. In rugged topography, a portable drill carried in by helicopter is often used to drill the holes rather than a truck-mounted drill.

A typical seismic drilling operation may utilize 10 to 15 men operating 5 to 7 trucks. Under normal conditions, 3 to 5 miles of line can be surveyed each day using the explosive method. The vehicles used for a drilling program may include heavy truck-mounted drill rigs, track-mounted air rigs, water trucks, a computer recording truck, and several light pickups for the surveyors, shot hole crew, geophone crew, permit man, and party chief.

Public roads and existing private roads and trails are used where possible. However, off-road travel is also necessary in some cases. Graders and dozers may be required to provide access to remote areas. Several trips a day are made along a seismograph line; this usually establishes a well-defined two-track trail. Drilling water, when needed, is usually obtained from private landowners.

Terrain within the Monument is of the type which may not allow the use of thumpers or vibrotrucks. Therefore, geophysical exploration in the study area would likely be accomplished with the use of portable drills and set charges.

Geophysical Exploration Operations

Geophysical operations may be conducted regardless of whether the land is leased or not. An operator is required to file a Notice of Intent to Conduct Oil and Gas Exploration Operations with the appropriate BLM office for all geophysical activities on BLM land. The Notice of Intent should include maps showing the line location and access routes, any anticipated surface damages and a timeframe for operations. The operator must be bonded.

Notices of Staking, APDs, drilling activities and subsequent well operations can only be approved, subject to regulations, on leased lands. Seasonal restrictions may be imposed to reduce fire hazards, conflicts with wildlife, watershed damage, hunting activity, etc.

Written approval must be obtained from the authorized officer prior to commencing any surface blading activities and the operator must contact the BLM when operations begin. The operator is required to comply with written instructions and orders given by the authorized officer at the prework conference, site inspection (if required) and during field investigations. Periodic checks during and upon completion of the operation will be conducted to ensure compliance with the terms of the Notice of Intent.

Drilling Permit Process

The federal lessee or operating company selects a drill site based on spacing requirements, subsurface and surface geology, geophysics, topography, and economic considerations. Statewide spacing regulations are established by the Montana State Board of Oil and Gas Conservation.

Notice of Staking (NOS)

Once the company makes the decision to drill, it must decide whether to submit a Notice of Staking (NOS) or apply directly for a permit to drill. The NOS is an outline of what the company intends to do, including a location map and sketched site plan. The NOS is used to review any conflicts with known critical resource values. The BLM utilizes information contained in the NOS and obtained from the onsite inspection to develop conditions of approval to be incorporated into the APD. As a result of the federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act of 1987), upon receipt of an NOS the operator/company name, well name/number, well location and a map showing the drill site must be posted in a public place for a minimum of 30 days prior to approving the APD. Application for Permit to Drill (APD)

The operator may or may not choose to submit an NOS; in either case, an APD must be submitted. An APD consists of two main parts: the 13-point surface plan which describes any surface disturbances and is reviewed by resource specialists; and the 8-point plan which details the drilling program and is reviewed by the petroleum engineer and geologist. For the APD option, the onsite inspection is used to assess possible impacts and develop conditions of approval to minimize these impacts. If the NOS option is not utilized, the 30-day posting period, as required by the Reform Act of 1987, will commence upon receipt of the APD by the BLM.

For oil and gas activity involving surface-disturbing operations, an archaeological clearance is required. However, there may be exceptions to this policy on a case-by-case basis. Additionally, the BLM must prepare any site-specific environmental documentation required by NEPA and develop mitigation measures necessary to protect any adversely affected resources. The BLM approves all wells drilled on federal minerals regardless of surface ownership. For privately owned surfaces, it is the responsibility of the operator to obtain a surface owner agreement.

Drilling Phase

Once the APD is approved, the operator may begin construction activities. When a site is chosen that necessitates the construction of an access road, it is usually planned over the shortest feasible route and would attempt to avoid steep slopes. Environmental factors or a landowner's wishes may dictate a longer route in some cases.

During this first phase the operator moves construction equipment over existing roads to the point where the access road begins. Depending upon the type of terrain, equipment may include dozers (track-mounted and rubber-tired), scrapers and graders. Existing roads and trails often require improvement in places, and occasionally, culverts and

cattle guards are installed. Because of the topography and the shallow depth of wells (1,500 to 2,200 feet), they can be drilled using a truck-mounted rig. Thus, oftentimes very little or no access road work is necessary and this phase of construction requires very little time.

The second phase is the construction of the drilling pad or platform. Much of the study area has steep slopes and some dirt work is necessary to prepare a safe drill pad. In some cases, no disturbance is required other than a mud (reserve) pit. If surface disturbance is necessary, soil material suitable for plant growth is removed and stockpiled in a designated area to be used later for reclamation. Drilling sites on ridge tops and hillsides are constructed by cutting and filling portions of the location after the topsoil has been removed. The excess cut material is stockpiled in an area that would allow easy recovery for reclamation.

The amount of level surface required for safely assembling and operating a drilling rig varies with the type of rig, but is usually 200 by 250 feet for typical wells of 1,500 to 2,200 foot depths. Deeper wells may require larger pads because of the rig size and associated equipment. When construction of a drilling location requires cut and fill, the foundation of the drilling derrick is usually placed on a cut surface ensuring that it rests on solid ground, thereby preventing it from leaning or toppling due to settling of uncompacted soil.

In addition to the drilling platform, a reserve pit may be constructed to contain drilling fluids and drill hole cuttings. It is usually square or oblong, but is sometimes constructed in other shapes to accommodate topography. Generally, the reserve pit is 6 to 12 feet deep. Smaller reserve pits are used for air drilling, usually less than 10-by-10 feet and approximately 6 to 10 feet in depth. In some instances, steel tanks are utilized which eliminate the need for a pit.

Depending on how the drill site is located relative to a natural drainage, it may be necessary to construct water bars or diversions to control surface runoff and erosion. The area disturbed for construction and the potential for successful revegetation depends largely on topography, soil type, climate and the degree of disturbance.

Water for drilling is hauled or piped to the rig storage tanks or reserve pit from rivers, wells, reservoirs or private sources. Occasionally, water supply wells are drilled on or close to the drill site. Bentonite, a type of clay, is mixed with the water to form the main constituent of the drilling mud. A wide variety of other materials and chemicals may be added to enhance the mud properties. Drilling mud performs several important functions; it cools the bit, reduces the drag of the drill pipe on the sides of the bore hole, seals off any porous zones, aids in preventing an uncontrolled release of formation fluids, and carries the cuttings to the surface.

High-pressure air is sometimes used in place of mud. The use of mud or air is largely dependent upon the target formation, drilling depth and type of completion desired. The drilling mud or air is circulated through the drill pipe to the bottom of the hole, through the bit and up the well bore. At the surface the mud and rock cuttings are returned to the reserve pit where gravity separates the two or they are mechanically separated through a screen. The mud is recycled and returned to the system for further use. When drilling with air the cuttings are blown into another pit called the blooie pit, where compressed air and cuttings leave the drill system. By regulation, this pit or discharge point is to be located no closer than 100 feet to the well bore. Drilling muds are not allowed to contain any hazardous or toxic substances.

The actual commencement of the drilling is referred to as "spudding in." Initially, the drilling usually proceeds rapidly due to the unconsolidated nature of shallow formations.

Drilling is accomplished by rotating special bits bearing a controlled portion of the drill string weight. The rig structure and associated hoisting equipment bear the remainder of the drill string's weight. The weight on the bit is controlled to maintain as vertical a hole as possible or deviate from vertical when desired, and to prevent rapid wearing of the drill bit.

The combination of rotary motion, hydraulic jet action of mud through the bit and weight on the bit causes rock to be chipped away at the bottom of the hole. As mentioned earlier, these chips are then transported to the surface via the mud or compressed air where they are disposed of into the reserve pit or blooie pit.

The rotary motion is either created by a square or hexagonal rod, called a kelly, which fits through a square or hexagonal hole in a large turntable, called a rotary table, or a top drive hydraulic unit that turns the drill pipe. The rotary table sits on the drilling rig floor and as the hole is deepened the kelly descends. When the kelly has gone as deep as it can, it is raised and a piece of drill pipe about 30 feet in length is attached to the drill pipe in the hole. The drill pipe is then lowered, the kelly is raised and attached to the top of it, and drilling recommences. By adding more and more drill pipe the hole is steadily deepened.

Eventually, the bit becomes worn and must be replaced. To change bits, the entire string of drill pipe must be pulled from the hole. Once the bit is replaced the drill string is reassembled, lowered into the hole and drilling is started again.

Drilling operations are continuous, 24 hours a day, 7 days a week. The crews usually work three 8-hour shifts or two 12-hour shifts a day. Typical wells in the area require 3 to

4 days to reach total depth. At periodic intervals, BLM personnel, usually petroleum engineering technicians, will conduct inspections of the drilling rig and operations to ensure compliance with regulations and the approved plans in the APD. If at any time the operator wishes to change the approved plans in the APD, verbal approval may be obtained, but must be followed up in writing.

Upon completion of drilling, the well is tested to determine its capability to produce hydrocarbons (oil and gas). If oil or gas is found in commercial quantities the well is completed as a producer. Typically, gas wells in this region are "sweet gas" wells, that is, they contain no hydrogen sulfide gas. Sweet gas production requires a meter house and a gathering line or marketing line to transport the gas. In some cases a compressor station is required to compress the gas to a pressure necessary for entry into a pipeline.

If liquid hydrocarbons (condensates) are produced with the gas, a separator and storage facility are necessary. Gas wells which produce water require a small water disposal pit. The pit generally fits within the boundaries of the drilling pad.

Installation of production facilities generally requires little additional surface disturbance beyond that necessary for drilling; however, additional disturbance does result from pipeline and gathering line installations. Gas meter houses are usually 10-by-10 feet, skid-mounted steel sheds. Pumpjacks are sometimes used if water produced with the gas and the gas reservoir pressure declines to a level that is not adequate to overcome the hydrostatic pressure created by a column of water. Pumpjacks are usually 8 to 10 feet in height, require a slightly larger surface area than a gas shack, and may or may not be skid mounted. The gas house and pumpjack are usually situated over the well head on the same area where the drill rig was set up. After the production facilities are installed the remaining drilling disturbances are reclaimed.

During the production phase, the BLM monitors compliance with regulations and approves field activities needed for well and field operations. Many operations, such as plugging, completion in a different zone, deepening, etc., require prior approval. Others, such as acidizing and fracturing, do not require prior approval, but a subsequent report describing the operation in detail must be filed.

Past, Present and Future Oil and Gas Exploration and Development Activity

Until the 1960s and 1970s, drilling and exploration activity was relatively low within the study area. Although gas was known to exist, it was not a primary objective or target while industry was in search of oil, due to gas prices as low as 10¢/MCF and lack of pipeline infrastructure. With rising gas

prices and more infrastructure available, the economic incentive exists to further explore and develop natural gas resources. The study area contains federal, state, and private leases that have a reasonable chance of being further developed for oil and gas (specifically gas, because oil has not been discovered in the Monument).

Geophysical and Chemical Surveys

Oil and gas can be discovered by either direct or indirect exploration methods. Direct exploration methods such as the mapping of rock outcrops and oil seeps, drill core analyses and drilling may lead to the discovery of oil and gas deposits, whereas indirect methods such as seismic and gravity surveys are used to delineate subsurface features which may contain oil and gas. Continued exploration for oil and gas accumulations in the study area and adjacent areas resulted from knowledge gained from surface geology, combined with well information on wells drilled in the region. Not until the late 1970s-early 1980s had seismic technology been used to gain a better understanding of the area's subsurface geologic structure. Further improvements in seismic technology and data collection processes continue to enhance the understanding of the area's subsurface geology.

Exploratory/Development Drilling

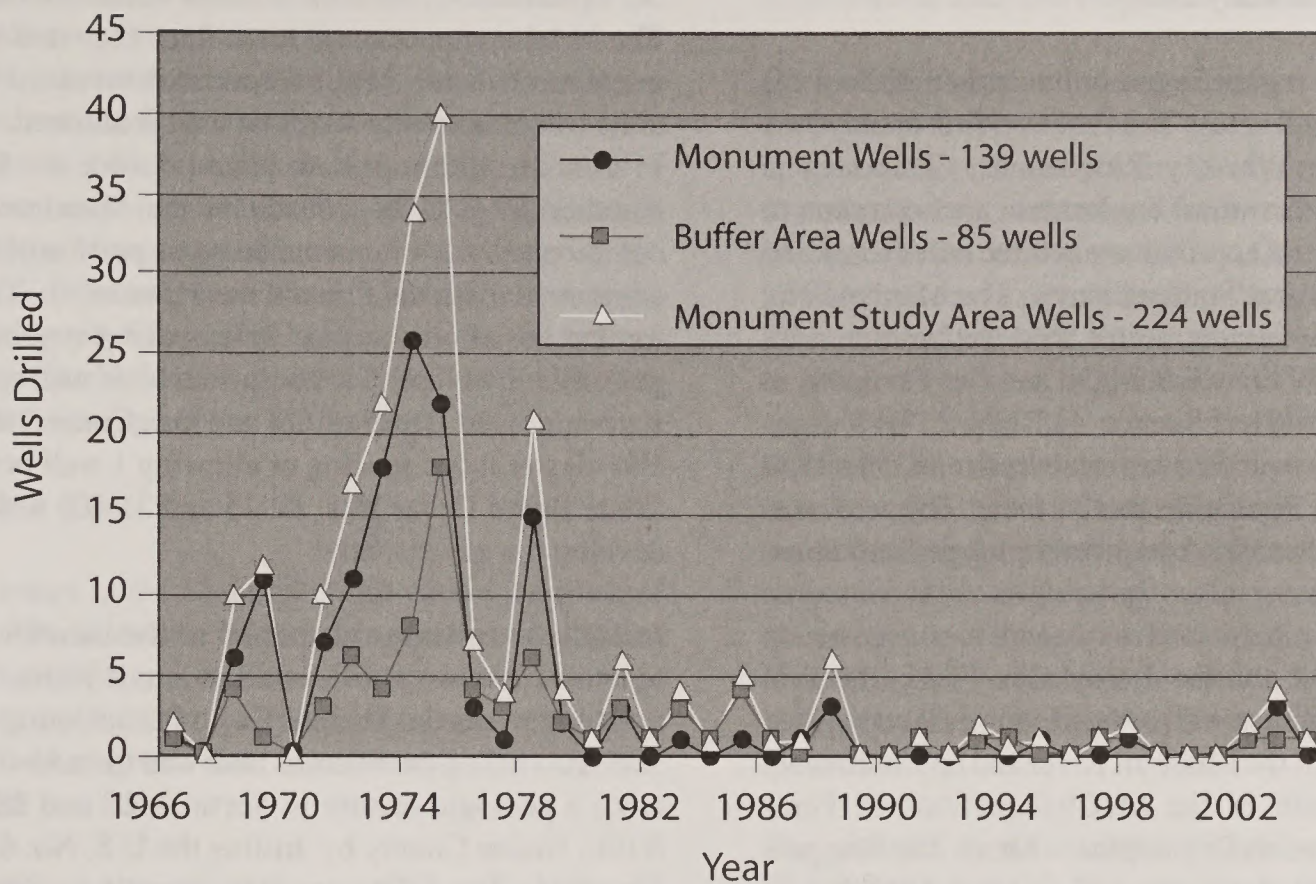
The following is a discussion of historic drilling activities in the study area. The narrative also discusses the potential of specific areas for future drilling and the potential for oil and gas to occur. The areas identified under this narrative are based on well information (drilling and electric logs), reservoir data, industry's geologic interpretation, historical production data, and information provided by industry indicating plans to explore and develop natural gas in the Monument and adjacent areas.

The majority of the oil and gas exploration and development activities in the region surrounding the study area (namely 35 townships covered by T21-27N; R17-21E) occurred prior to the Monument. Oil and gas activity in the region began in 1917 (the date the first well was drilled). A total of 869 wells were drilled within these 35 townships prior to the Monument.

A total of 139 wells have been drilled in the Monument with an additional 85 wells (224 wells total) drilled outside the Monument but within 1/2 mile. Some activity falls outside of the study area because of a federal lease, federal Communitization Agreement, or federal unit. The majority of the historic drilling in the study area occurred in the 1970s and 1980s following trends with respect to natural gas pricing and infrastructure (Figure K.3-3). A total of 15 wells have tested/produced commercial quantities of gas for a success rate of 10.8% in the Monument. The overall success rate increases to 18% when wells within the study

Figure K.3-3

Drilling History in the Monument Study Area



area are added, or 40 out of 224 wells. The success rates have improved in more recent years as knowledge of the area improves. Using the previous 20 years of drilling history, the overall success rate improves from 18% to 35%.

Table K.3-2 shows historical natural gas exploration and development in the Monument.

New Field and Reservoir Discoveries

Outside of the Judith River, Eagle and Carlile Formations within the study area there is limited chance for new fields and reservoir discoveries because of the historical drilling patterns. It is not known if operators of the federal leases will perform exploratory drilling into deeper horizons prior

Table K.3-2
Historical Natural Gas Exploration and Development in the Monument

<i>Natural Gas Wells</i>	<i>Leroy Gas Field</i>	<i>Sawtooth Mountain Gas Field</i>	<i>Sherard Unit Area</i>	<i>Outside of Existing Fields</i>	<i>Total</i>
Drilled	42	2	12	83	139
Dry Holes (Abandoned)	29	2	9	82	122
Completed	13	0	3	1	17
Production	12	0	3	0	15
Shut-In without Pipeline	1	0	0	1	2
Completed Wells Plugged	5	0	0	0	5
Completed Wells Active	8	0	3	1	12
Production (BCF)	2.2	0	3.9	0	6.1

to the expiration of the leases. Once a lease expires no further oil or gas activity will occur. Other than the above-mentioned formations, no other zones have found oil or gas in the vicinity of the study area.

Exploration of the region began in the early 1920s in the Sherard and Winifred areas. The first well in the study area was drilled in the Whiskey Ridge area. This area is considered the southernmost exploration area common to the Monument and lies approximately three miles south and west of the McClelland/Stafford Ferry. The Mauland No. 2 well was the Monument area's first exploration well drilled in October 1939 by E & M Oil and Gas Company at a location in the SESE of Section 4, T22N R18E, Fergus County. The well was drilled to a total depth of 635 feet and reached the Eagle Sandstone at 424 feet. The well was drilled as a dry hole and subsequently plugged and abandoned.

The discovery well for the Leroy Gas Field (the first commercially productive well in the Monument) was drilled about a mile north of the Missouri River and approximately 3 miles downstream of the McClelland/Stafford Ferry (Leroy One Exploration/Development Area). The Bearpaw Federal No. 1-18 well was spud in October 1968 by El Santo Petroleum Corp. & Royal Crest Oil Corp. at a location in the NWNWNW of Section 18, T23N R19E, Blaine County. The well was completed in November 1968 as a producing gas well and later produced 455,420 MCF of natural gas between December 1980 and May 1991 before it was plugged and abandoned (June 1, 1996) as a depleted producer. Note that the well was idle (shut-in) for nearly 12 years before pipeline infrastructure was introduced to the area in 1980. Although this well was considered the first commercially productive well in the Monument, two other successful wells were drilled in the Monument prior to the above-referenced well but were never produced.

Past and Present Oil and Gas Development Activity and Comparisons to Development Activity Located Outside the Monument

The study area currently includes 43 federal oil and gas leases (42,805 acres) and 3 state oil and gas leases (1,918 acres). The majority of the federal leases are located partially outside the Monument and can occur in a non-contiguous manner. Private land (surface and mineral ownership) in the area may also include oil and gas leases. The majority of the leased federal lands are in Blaine County (92% north of the river) and the remainder are located in Fergus and Chouteau Counties (5% and 3% respectively). None of the existing federal leases in the Monument are in Phillips County.

A lease in the Monument may also be part of a Communitization Agreement (CA) and/or Unit Agree-

ment. The agreements provide for an administrative method to develop the gas resources and allow a fair and equitable allocation of well production back to specific leases tied to the agreements, based on acreage within the agreements. The CAs are necessary to protect the various mineral interests (federal, state and private) involved in spacing units where normally only one well is allowed. Currently, 11 CAs are within or both in and outside the Monument. Another 10 CAs lie outside of the Monument, yet are common to the Monument because a portion of the lease is common to both the CA and the Monument. The CAs are formed based on standard state spacing requirements for gas wells (1 well per 640 acres, statewide well spacing) and state-approved Board of Oil and Gas Conservation orders allowing reduced spacing or allowing 1 well per 320 acres (State Board Order Nos. 19-75 and 31-87) to sufficiently develop the gas resource.

In addition to leases contained in the mentioned CAs, 2 federal leases are also located in a unit within the Monument known as the Sherard Eagle Participating Area (PA) "E." PA "E" of the Sherard Unit was formed after discovering a geologic feature in Sections 27 and 28 of T25N R19E, Blaine County by drilling the U.S. No. 6-28 well in late 1974. The 1,280-acre PA currently contains 3 active wells in the Monument producing from the Eagle Formation.

Leroy Gas Field

The majority of the federal leases lie within the Leroy Gas Field. The field was discovered in November 1968 by the Federal 1-18 well drilled by El Santo Petroleum Corp in the NWNWNW of Section 18, T23N R19E (within the Monument).

Following the well which led to the discovery of the Leroy Gas Field in 1968, 41 additional wells were drilled in the Monument. Twenty-nine were abandoned as dry holes. Thirteen were completed (12 to production and one shut in without a pipeline). Of these 13, five were eventually plugged (including the discovery well); leaving eight active wells in the Monument. These wells produced 2.2 BCF. Per State Board Order Nos. 19-75 and 31-87, the Leroy Gas Field is allowed to be developed on 320-acre spacing units for the Judith River and Eagle/Virgelle Formations with each unit consisting of half sections lying in a north-south or east-west direction.

There are also 16 wells outside the Monument but within 1/2 mile that drain from the Leroy Gas Field. These wells have produced 2.5 BCF. Another 11 wells, outside the Monument and further than 1/2 mile also are within the Leroy Gas Field and produced 5.1 BCF. Of these 11 wells, four have been plugged.

Sawtooth Mountain Gas Field

The Sawtooth Mountain Gas Field lies at the very northern edge of the Monument's east section. It is common to the Monument because two federal leases overlap the Monument and the Sawtooth Mountain Gas Field. Currently, no active Monument wells are within the Sawtooth Mountain Gas Field leases; however, two wells lie within 1/2 mile of the Monument and are contained in a lease and CA both in and outside the Monument. The wells were drilled in the mid-1970s and continue to produce. Geologic characteristics of the Sawtooth Mountain Gas Field are similar to those of the Leroy Gas Field as they are adjacent to one another near the northern edge of the Monument.

Sherard Unit Area

Six of the leases in the Monument fall within the Sherard Unit Area. The first successful well in this area was drilled in December 1974 and continues to produce. Geologic characteristics of the Sherard Unit Area are similar in nature to those of the Leroy Gas field as a relatively short distance separates the two fields.

The Sherard Unit Area allows for one well per section with numerous well density and location exceptions. Because the area is so broken with fault blocks, there is a need to drill additional wells. For example, if one section of land contains 10 individual fault blocks, it is highly likely that the BLM and the Montana Board of Oil and Gas Conservation would be petitioned by industry to allow wells to be drilled into each discrete fault block in order to produce the entire section of land.

Three wells are currently active in the Monument and have produced 3.9 BCF. Another four wells are outside the Monument but within 1/2 mile and have produced 1.7 BCF.

Wells Outside Field Boundaries

In addition to the wells discussed above, one additional well lies in the Monument to the east of the Leroy Gas Field and is currently shut in, waiting on a pipeline.

Table K.3-3 shows current natural gas activity in the Monument.

Exploration and Development Areas

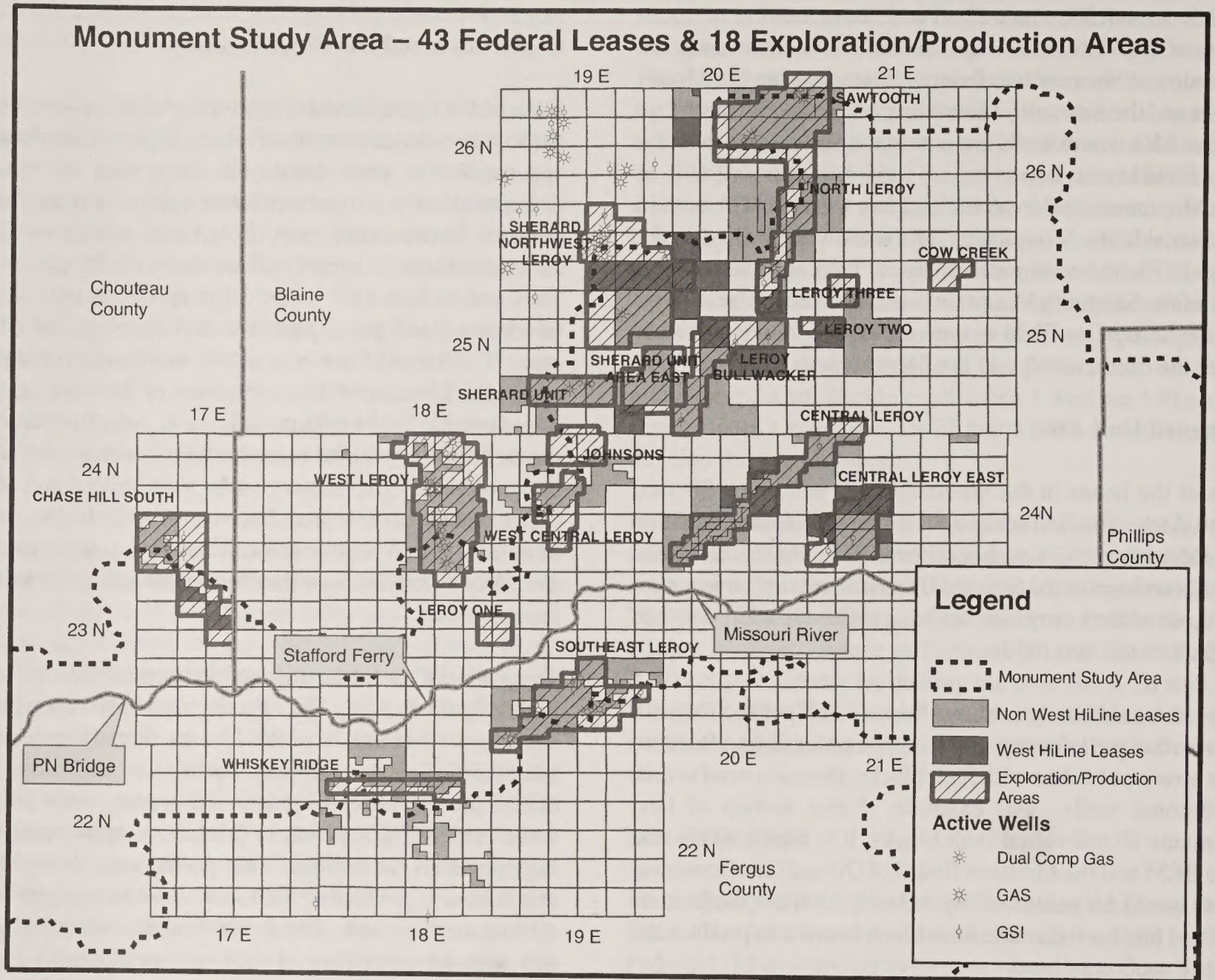
Each of the fields includes productive areas referred to as exploration and development areas. Eighteen exploration and productive areas within the study area are used to describe historic, current and future exploration and development. In two of the areas (Cow Creek and Leroy One), no federal leases exist and will not under the Proclamation. They are included for historical purposes to indicate the trend of oil and gas exploration and development of the area. The 18 areas are common to and mostly contained within the Monument; however, some of the areas are both in and outside the Monument (Figure K.3-4). In addition to the wells drilled within the exploration/development areas, numerous other exploratory wells were drilled and abandoned outside of these areas because the wells had no shows of natural gas. Valuable information was gained from the abandoned wells because they further identified the subsurface resource.

The potential for future drilling has been rated from low to high (Figure K.3-2). The criteria were based on whether another well could be drilled in an already productive spacing unit, or whether the spacing unit had a dry hole drilled previous to this report. The spacing units without wells drilled and adjacent to productive areas received a high potential for drilling. The spacing units with either a dry hole or a productive well received a low potential for drilling another well. Due to the complex structural geology and the possibility of drilling a producing gas well within several acres of dry holes, exceptions could occur in the low potential drilling areas. All other areas were given a moderate potential for drilling another well.

Of the 18 exploration and development areas it is reasonably foreseeable that 73 natural gas wells could be drilled in 11 of the areas (Map 2, Side B). Table K.3-1 shows the number of RFD wells for each exploration and development area. However, this is prior to considering any resource stipulations or conditions of approval, which is addressed in Chapter 4.

Table K.3-3 Current Natural Gas Activity in the Monument					
Natural Gas Wells	Leroy Gas Field	Sawtooth Mountain Gas Field	Sherard Unit Area	Outside of Existing Fields	Total
Active Wells	8	0	3	1	12
Currently Producing	2	0	2	0	4
Shut-In with Pipeline	5	0	1	0	6
Shut-In without Pipeline	1	0	0	1	2

Figure K.3-4



APPENDIX L

Wildlife

L.1 Wildlife Mitigation Noise Levels

The following wildlife mitigation measures will be considered for production facilities and heavy equipment.

1. For all areas in the Monument, no more than 49 decibels at 300 feet from all production equipment (BLM 2003c).
2. Restrict noise levels from production facilities to 49 decibels (10 decibels above background noise at the lek). (Management Plan and Conservation Strategies for Sage Grouse in Montana – Final 2005)
3. Restrict use of heavy equipment that exceeds 49 decibels within 2 miles of a lek from 4 a.m.-8 a.m. and 7 p.m.-10 p.m. during March 1-June 15. (Management Plan and Conservation Strategies for Sage Grouse in Montana – Final 2005)
4. Noise restriction during drilling/construction would only be limited as per guidelines for sage grouse in the Management Plan and Conservation Strategies for Sage Grouse in Montana – Final 2005.

For comparison, Table L.1.1 provides the noise level and human response for various sources.

L.1.1 Noise Levels and Human Response		
<i>Noise Source</i>	<i>Decibel Noise Level</i>	<i>Human Response</i>
Carrier Jet Operation	140	Harmfully Loud
	130	Pain Threshold
Jet Takeoff (200 feet; thence.) Discotheque	120	
Unmuffled Motorcycle Auto Horn (3 feet; thence.) Rock'n Roll Band Riveting Machine	110	Maximum Vocal Effort Physical Discomfort
Loud Power Mower Jet Takeoff (2000 feet; thence.) Garbage Truck	100	Very Annoying Hearing Damage (Steady 8-Hour Exposure)
Heavy Truck (50 feet; thence.) Pneumatic Drill (50 feet; thence.)	90	
Alarm Clock Freight Train (50 feet; thence.) Vacuum Cleaner (10 feet; thence.)	80	
Freeway Traffic (50 feet; thence.)	70	Annoying Telephone Use Difficult
Dishwashers Air Conditioning Unit (20 feet; thence.)	60	Intrusive
Light Auto Traffic (100 feet; thence.)	50	Quiet
Living Room Bedroom	40	
Library Soft Whisper (15 feet; thence.)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

Source: Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970, Page 2.

L.2 Fish, Wildlife, Herptofauna, and Avian Species Found within the Monument

Fish

Common Name	Scientific Name	Native or Introduced	Occurrence	Status
Bigmouth Buffalo	<i>Ictiobus cyprinellus</i>	Native	Seasonally common	
Black Bullhead	<i>Ictalurus melas</i>	Introduced	Rare	
Black Crappie	<i>Pomoxis nigromaculatus</i>	Introduced	Uncommon	
Blue Sucker	<i>Cycleptus elongatus</i>	Native	Common	Sensitive Species
Brassy Minnow	<i>Hybognathus hankinsoni</i>	Native	Uncommon	
Brook Trout	<i>Salvelinus fontinalis</i>	Introduced	Incidental	
Brook Stickleback	<i>Culaea inconstans</i>	Native	Uncommon	
Brown Trout	<i>Salmo trutta</i>	Introduced	Uncommon	
Burbot	<i>Lota lota</i>	Native	Uncommon	
Carp	<i>Cyprinus carpio</i>	Introduced	Abundant	
Channel Catfish	<i>Ictalurus punctatus</i>	Native	Common	
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Introduced	Rare	
Cisco	<i>Coregonus artedii</i>	Introduced	Uncommon	
Emerald Shiner	<i>Notropis atherinoides</i>	Native	Abundant	
Fathead Minnow	<i>Pimephales promelas</i>	Native	Common	
Flathead Chub	<i>Hybopsis gracilis</i>	Native	Abundant	
Freshwater Drum	<i>Aplodinotus grunniens</i>	Native	Uncommon	
Goldeye	<i>Hiodon alosoides</i>	Native	Abundant	
Goldfish	<i>Carassius auratus</i>	Introduced	Rare	
Iowa Darter	<i>Etheostoma exile</i>	Native	Uncommon	
Lake Chub	<i>Couesius plumbeus</i>	Native	Common	
Longnose Dace	<i>Rhinichthys cataractae</i>	Native	Common	
Longnose Sucker	<i>Catostomus catostomus</i>	Native	Common	
Mottled Sculpin	<i>Cottus bairdi</i>	Native	Uncommon	
Mountain Sucker	<i>Catostomus platyrhynchus</i>	Native	Uncommon	
Mountain Whitefish	<i>Prosopium williamsoni</i>	Native	Uncommon	
Northern Pike	<i>Esox lucius</i>	Introduced	Common	
Northern redbelly X Finescale dace	<i>Phoxinus eos x phoxinus neogaeus</i>	Native	Rare	Sensitive Species
Paddlefish	<i>Polyodon spathula</i>	Native	Seasonally common	Sensitive Species
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Native	Rare	Endangered Species
Pearl dace	<i>Semotilus/Margariscus margarita</i>	Native	Rare	Sensitive Species
Plains Minnow	<i>Hybognathus placitus</i>	Native	Uncommon	
Pumpkinseed	<i>Lepomis gibbosus</i>	Native	Rare	
Rainbow Trout	<i>Salmo gairdneri</i>	Introduced	Uncommon	
River Carpsucker	<i>Carpoides carpio</i>	Native	Abundant	
Sand Shiner	<i>Notropis stramineus</i>	Native	Rare	
Sauger	<i>Stizostedion canadense</i>	Native	Common	Sensitive Species
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	Native	Abundant	
Shovelnose Sturgeon	<i>Scaphirhynchus platyrhynchus</i>	Native	Common	
Sicklefin Chub	<i>Macrhybopsis meeki</i>	Native	Common	Sensitive Species
Smallmouth Bass	<i>Micropterus dolomieu</i>	Introduced	Uncommon	
Smallmouth Buffalo	<i>Ictiobus bubalus</i>	Native	Common	
Spottail Shiner	<i>Notropis hudsonius</i>	Introduced	Uncommon	
Stonecat	<i>Noturus flavus</i>	Native	Common	
Sturgeon Chub	<i>Hybopsis gelida</i>	Native	Common	Sensitive Species
Walleye	<i>Stizostedion vitreum</i>	Introduced	Common	
Western Silvery Minnow	<i>Hybognathus nuchalis</i>	Native	Abundant	
White Crappie	<i>Pomoxis annularis</i>	Introduced	Uncommon	
White Sucker	<i>Catostomus commersoni</i>	Native	Common	
Yellow Perch	<i>Perca flavescens</i>	Introduced	Uncommon	

Wildlife

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>
Badger	<i>Taxidea taxus</i>	
Beaver	<i>Castor canadensis</i>	
Big Brown Bat	<i>Eptesicus fuscus</i>	
Bighorn Sheep	<i>Ovis canadensis</i>	
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	Sensitive Species
Bobcat	<i>Lynx rufus</i>	
Bushy Tail Woodrat	<i>Neotoma cinerea</i>	
Coyote	<i>Canis latrans</i>	
Deer Mouse	<i>Peromyscus maniculatus</i>	
Desert Cottontail	<i>Sylvilagus audubonii</i>	
Dwarf Shrew	<i>Sorex nanus</i>	
Hayden's Shrew	<i>Sorex haydeni</i>	
Hoary Bat	<i>Lasiurus cinereus</i>	
House Mouse	<i>Mus musculus</i>	
Least Chipmunk	<i>Tamias minimus</i>	
Least Weasel	<i>Mustela nivalis</i>	
Little Brown Myotis (Bat)	<i>Myotis lucifugus</i>	
Long-eared Myotis (Bat)	<i>Myotis evotis</i>	Sensitive Species
Long-legged Myotis (Bat)	<i>Myotis volans</i>	Sensitive Species
Long-tailed Vole	<i>Microtus longicaudus</i>	
Long-tailed Weasel	<i>Mustela frenata</i>	
Masked Shrew	<i>Sorex cinereus</i>	
Meadow Vole	<i>Microtus pennsylvanicus</i>	
Merriam's Shrew	<i>Sorex merriami</i>	
Mink	<i>Mustela vison</i>	
Montane Shrew	<i>Sorex monticolus</i>	
Mountain Cottontail	<i>Sylvilagus nuttallii</i>	
Mountain Lion	<i>Puma concolor</i>	
Mule Deer	<i>Odocoileus hemionus</i>	
Muskrat	<i>Ondatra zibethicus</i>	
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>	
Northern Pocket Gopher	<i>Thomomys talpoides</i>	
Northern Water Shrew	<i>Sorex palustris</i>	
Olive-backed Pocket Mouse	<i>Perognathus fasciatus</i>	
Ord's Kangaroo Rat	<i>Dipodomys ordii</i>	
Porcupine	<i>Erethizon dorsatum</i>	
Prairie Vole	<i>Microtus ochrogaster</i>	
Preble's Shrew	<i>Sorex preblei</i>	
Pronghorn	<i>Antilocapra americana</i>	
Raccoon	<i>Procyon lotor</i>	
Red Bat	<i>Lasiurus borealis</i>	
Red Fox	<i>Vulpes vulpes</i>	
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	
Richardson's Ground Squirrel	<i>Spermophilus richardsonii</i>	
River Otter	<i>Lontra canadensis</i>	
Rocky Mountain Elk	<i>Cervus elaphus</i>	
Sagebrush Vole	<i>Lemmys curatus</i>	
Short-tailed Weasel	<i>Mustela erminea</i>	
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	
Striped Skunk	<i>Mephitis mephitis</i>	
Thirteen-lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>	
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Sensitive Species
Western Harvest Mouse	<i>Reithrodontomys megalotis</i>	

Western Jumping Mouse	<i>Zapus princeps</i>
Western Small-footed Myotis (Bat)	<i>Myotis ciliolabrum</i>
White-footed Mouse	<i>Peromyscus leucopus</i>
Whitetail Jackrabbit	<i>Lepus townsendii</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
Yellow-bellied Marmot	<i>Marmota flaviventris</i>
Yellow-pine Chipmunk	<i>Tamias amoenus</i>
Yuma Myotis (Bat)	<i>Myotis yumanensis</i>

Herptofauna

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>
Bull Snake	<i>Pituopis melanoleucus sayi</i>	
Garter Snake	<i>Thamnophis spp.</i>	
Great Plains Toad	<i>Bufo cognatus</i>	Sensitive Species
Greater short-horned lizard	<i>Phrynosoma hernandesi hernandesi</i>	Sensitive Species
Milk Snake	<i>Lampropeltis triangulum</i>	
Northern Leopard Frog	<i>Rana pipiens</i>	Sensitive Species
Plains spadefoot	<i>Spea bombifrons</i>	Sensitive Species
Eastern Racer	<i>Coluber constrictor flaviventris</i>	
Snapping Turtle	<i>Chelydra spp.</i>	Sensitive Species
Spiny Soft-shell Turtle	<i>Trionyx spiniferus</i>	Sensitive Species
Tiger Salamander	<i>Ambystoma tigrinum</i>	
Western Chorus Frog	<i>Pseudacris triseriata</i>	
Western Hog-nosed Snake	<i>Heterodon nasicus</i>	Sensitive Species
Western Rattlesnake	<i>Crotalus viridis</i>	
Woodhouse Toad	<i>Bufo woodhousii</i>	

Avian

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>
American Avocet	<i>Recurvirostra americana</i>	
American Bittern	<i>Botaurus lentiginosus</i>	
American Coot	<i>Fulica americana</i>	
American Crow	<i>Corvus brachyrhynchos</i>	
American Goldfinch	<i>Carduelis tristis</i>	
American Kestrel	<i>Falco sparverius</i>	
American Pipit	<i>Anthus rubescens</i>	
American Redstart	<i>Setophaga ruticilla</i>	
American Robin	<i>Turdus migratorius</i>	
American Tree Sparrow	<i>Spizella arborea</i>	
American White Pelican	<i>Pelecanus erythrorhynchos</i>	
American Wigeon	<i>Anas americana</i>	
Baird's Sandpiper	<i>Calidris bairdii</i>	
Bairds Sparrow	<i>Ammodramus bairdii</i>	Sensitive Species
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened Species
Baltimore Oriole	<i>Icterus galbula</i>	
Bank Swallow	<i>Piparia riparia</i>	
Barn Swallow	<i>Hirundo rustica</i>	
Belted Kingfisher	<i>Ceryle alcyon</i>	
Black and White Warbler	<i>Mniotilta varia</i>	
Black Tern	<i>Chlidonias niger</i>	Sensitive Species
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	
Black-billed Magpie	<i>Pica hudsonia</i>	
Black-capped Chickadee	<i>Poecile atricapilla</i>	

Black-crowned Night Heron
 Black-headed Grosbeak
 Black-necked Stilt
 Blackpoll Warbler
 Blue-winged Teal
 Bobolink
 Bohemian Waxwing
 Bonaparte's Gull
 Brewer's Blackbird
Brewer's Sparrow
 Brown Creeper
 Brown Thrasher
 Brown-headed Cowbird
 Bufflehead
 Bullock's Oriole
Burrowing Owl
 California Gull
 Canada Goose
 Canvasback Duck
 Cassin's Finch
 Cedar Waxwing
Chestnut-collared Longspur
 Chipping Sparrow
 Cinnamon Teal
 Clark's Nutcracker
 Clay-colored Sparrow
 Cliff Swallow
 Common Goldeneye
 Common Grackle
 Common Merganser
 Common Nighthawk
 Common Poorwill
 Common Raven
 Common Redpoll
 Common Snipe
 Common Tern
 Common Yellowthroat
 Cooper's Hawk
 Dark-eyed Junco
 Double-crested Cormorants
 Downy Woodpecker
 Dusky Flycatcher
 Eared Grebe
 Eastern Kingbird
 European Starling
 Evening Grosbeak
Ferruginous Hawk
 Forester's Tern
 Fox Sparrow
Franklin's Gull
 Gadwall
 Golden Crowned Kinglet
Golden Eagle
 Grasshopper Sparrow
 Gray Catbird
 Gray Partridge
 Gray-crowned Rosy-Finch

Nycticorax nycticorax
Pheucticus melanocephalus
Himantopus mexicanus
Dendroica striata
Anas discors
Dolichonyx oryzivorus
Bombycilla garrulus
Larus philadelphia
Euphagus cyanocephalus
Spizella breweri
Certhia americana
Toxostoma rufum
Molothrus ater
Bucephala albeola
Icterus bullockii
Athene cunicularia
Larus californicus
Branta canadensis
Aythya valisineria
Carpodacus cassinii
Bombycilla cedrorum
Calcarius ornatus
Spizella passerina
Anas cyanoptera
Nucifraga columbiana
Spizella pallida
Petrochelidon pyrrhonota
Bucephala clangula
Quiscalus quiscula
Mergus merganser
Chordeiles minor
Phalaenoptilus nuttallii
Corvus corax
Carduelis flammea
Gallinago gallinago
Sterna hirundo
Geothlypis trichas
Accipiter cooperii
Junco hyemalis
Phalacrocorax auritus
Picoides pubescens
Empidonax oberholseri
Podiceps nigricollis
Tyrannus tyrannus
Sturnis vulgaris
Coccothraustes vesterinus
Buteo regalis
Sterna forsteri
Passerella iliaca
Larus pipixcan
Anas strepera
Regulus satrapa
Aquila chrysaetos
Ammodramus savannarum
Dumetella carolinensis
Perdix perdix
Leucosticte tephrocotis

Sensitive Species

Sensitive Species

Sensitive Species

Sensitive Species

Sensitive Species

Sensitive Species

Great Blue Heron	<i>Ardea herodias</i>	
Great Horned Owl	<i>Bubo virginianus</i>	
Greater Sage-Grouse	<i>Centrocuercus urophasianus</i>	Sensitive Species
Greater Yellowlegs	<i>Tringa melanoleuca</i>	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	
Green-winged Teal	<i>Anas crecca</i>	
Hairy Woodpecker	<i>Picoides villosus</i>	
Harris's Sparrow	<i>Zonotrichia querula</i>	
Hermit Thrush	<i>Catharus guttatus</i>	
Herring Gull	<i>Larus argentatus</i>	
Hooded Merganser	<i>Lophocytus cucullatus</i>	
Horned Grebe	<i>Podiceps auritus</i>	
Horned Lark	<i>Eremophila alpestris</i>	
House Finch	<i>Carpodacus mexicanus</i>	
House Sparrow	<i>Passer domesticus</i>	
House Wren	<i>Troglodytes aedon</i>	
Killdeer	<i>Charadrius vociferus</i>	
Lapland Longspur	<i>Calcarius lapponicus</i>	
Lark Bunting	<i>Calamospiza melanocorys</i>	
Lark Sparrow	<i>Chondestes grammacus</i>	
Lazuli Bunting	<i>Passerina amoena</i>	
Least Flycatcher	<i>Empidonax minimus</i>	
Least Sandpiper	<i>Calidris minutilla</i>	
Least Tern	<i>Sterna antillarum</i>	
Lesser Scaup	<i>Aythya affinis</i>	
Lesser Yellowlegs	<i>Tringa flavipes</i>	
Lewis's Woodpecker	<i>Melanerpes lewis</i>	
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Sensitive Species
Long-billed Curlew	<i>Numenius americanus</i>	Sensitive Species
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	
Long-eared Owl	<i>Asio otus</i>	
MacGillivray's Warbler	<i>Oporornis tolmiei</i>	
Mallard	<i>Anas platyrhynchos</i>	
Marbled Godwit	<i>Limosa fedoa</i>	Sensitive Species
Marsh Wren	<i>Cistothorus palustris</i>	
McCown's Longspur	<i>Calcarius mccownii</i>	Sensitive Species
Merlin	<i>Falco columbarius</i>	
Mountain Bluebird	<i>Sialia currucoides</i>	
Mountain Chickadee	<i>Poecile gambeli</i>	
Mountain Plover	<i>Charadrius montanus</i>	Sensitive Species
Mourning Dove	<i>Zenaida macroura</i>	
Northern Flicker	<i>Colaptes auratus</i>	
Northern Goshawk	<i>Accipiter gentilis</i>	Sensitive Species
Northern Harrier	<i>Circus cyaneus</i>	
Northern Pintail	<i>Anas acuta</i>	
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	
Northern Shoveler	<i>Anas clypeata</i>	
Northern Shrike	<i>Lanius excubitor</i>	
Northern Waterthrush	<i>Seiurus noveboracensis</i>	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	
Orange-crowned Warbler	<i>Vermivora celata</i>	
Osprey	<i>Pandion haliaetus</i>	
Ovenbird	<i>Seiurus aurocapillus</i>	
Pectoral Sandpiper	<i>Calidris melanotos</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	Sensitive Species
Pied-billed Grebe	<i>Podilymbus podiceps</i>	

Pine Siskin	<i>Carduelis pinus</i>	
Piping Plover	<i>Charadrius melodus</i>	
Prairie Falcon	<i>Falco mexicanus</i>	
Red Crossbill	<i>Loxia curvirostra</i>	
Red-breasted Merganser	<i>Mergus serrator</i>	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	
Red-eyed Vireo	<i>Vireo olivaceus</i>	
Redhead	<i>Aythya americana</i>	
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Sensitive Species
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	
Ring-billed Gull	<i>Larus delawarensis</i>	
Ring-necked Duck	<i>Aythya collaris</i>	
Ring-necked Pheasant	<i>Phasianus colchicus</i>	
Rock Dove	<i>Columba livia</i>	
Rock Wren	<i>Salpinctes obsoletus</i>	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	
Ross's Goose	<i>Chen rossii</i>	
Rough-legged Hawk	<i>Buteo lagopus</i>	
Ruby Crowned Kinglet	<i>Regulus calendula</i>	
Ruddy Duck	<i>Oxyura jamaicensis</i>	
Rusty Blackbird	<i>Euphagus carolinus</i>	
Sage Thrasher	<i>Oreoscoptes montanus</i>	Sensitive Species
Sandhill Crane	<i>Grus canadensis</i>	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	
Say's Phoebe	<i>Sayornis saya</i>	
Semipalmated Plover	<i>Charadrius semipalmatus</i>	
Semipalmated Sandpiper	<i>Calidris pusilla</i>	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	
Short-eared Owl	<i>Asio flammeus</i>	
Snow Bunting	<i>Plectrophenax nivalis</i>	
Snow Goose	<i>Chen caerulescens</i>	
Snowy Owl	<i>Nyctea scandiaca</i>	
Solitary Sandpiper	<i>Tringa solitaria</i>	
Song Sparrow	<i>Melospiza melodia</i>	
Sora	<i>Porzana carolina</i>	
Spotted Sandpiper	<i>Actitis macularia</i>	
Spotted Towhee	<i>Pipilo maculatus</i>	
Sprague's Pipit	<i>Anthus spagueii</i>	Sensitive Species
Swainson's Hawk	<i>Buteo swainsoni</i>	Sensitive Species
Swainson's Thrush	<i>Catharus ustulatus</i>	
Tennessee Warbler	<i>Vermivora peregrina</i>	
Townsend's Solitaire	<i>Myadestes townsendi</i>	
Tree Swallow	<i>Tachycineta bicolor</i>	
Tundra Swan	<i>Cygnus columbianus</i>	
Turkey Vulture	<i>Cathartes aura</i>	
Upland Sandpiper	<i>Bartramia longicauda</i>	
Veery	<i>Catharus fuscescens</i>	
Vesper Sparrow	<i>Poocetes gramineus</i>	
Violet-green Swallow	<i>Tachycineta thalassina</i>	
Virginia Rail	<i>Rallus limicola</i>	
Warbling Vireo	<i>Vireo gilvus</i>	
Western Bluebird	<i>Sialia mexicana</i>	
Western Grebe	<i>Aechmophorus occidentalis</i>	
Western Kingbird	<i>Tyrannus verticalis</i>	

Western Meadowlark	<i>Sturnella neglecta</i>	
Western Tanager	<i>Piranga ludoviciana</i>	
Western Wood-Pewee	<i>Contopus sordidulus</i>	
White-breasted Nuthatch	<i>Sitta carolinensis</i>	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	
White-faced Ibis	<i>Plegadis chihi</i>	Sensitive Species
White-fronted Goose	<i>Anser albifrons</i>	
White-throated Sparrow	<i>Zonotrichia albicollis</i>	
White-winged Crossbill	<i>Loxia leucoptera</i>	
Wild Turkey	<i>Meleagris gallopavo</i>	
Willet	<i>Catoptrophorus semipalmatus</i>	Sensitive Species
Willow Flycatcher	<i>Empidonax traillii</i>	
Wilson's Phalarope	<i>Phalaropus tricolor</i>	Sensitive Species
Wilson's Warbler	<i>Wilsonia pusilla</i>	
Wood Duck	<i>Aix sponsa</i>	
Yellow Warbler	<i>Dendroica petechia</i>	
Yellow-breasted Chat	<i>Icteria virens</i>	
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	

L.3 Determination of Potential Presence of Threatened, Endangered, or Candidate Species and BLM (Montana and Dakotas) Designated Sensitive Species

L.3.1 Federally Listed Threatened (T) and Endangered (E) Species (No Candidate Species Present)

<i>Species</i>	<i>Status</i>	<i>In Range (yes/no)*</i>	<i>Habitat Present (yes/no)**</i>	<i>Effects Determination</i>
Bald Eagle	T	Y	Y	Habitat present is primarily foraging during fall migration and winter. There are three nest sites and numerous wintering and casual roost sites. The recreational activity along the Missouri River "May Affect" this species, but is "Not Likely to Adversely Affect." The quantity and quality of this habitat will not be reduced appreciably. Should not impact individuals, their habitat, or their prey base.
Black-footed ferret	E	Y	Y	Any prairie dog town over 80 acres is considered habitat, but small towns within the Monument will not support ferrets.
Pallid Sturgeon	E	Y	Y	Habitat is present in the Missouri River. The quantity and quality of this habitat will not be reduced and none of the proposed alternatives would affect this species.

*Range of species will indicate whether there is potential for a species to occur within the area, based on distribution determined by Fish, Wildlife & Parks, Natural Heritage, or other researchers. This does not guarantee presence.

**If suitable habitat is within the range of a species, that species is assumed to use the available habitat. This is not a guarantee of the presence of that species within the analysis area.

L.3.2 BLM (Montana and Dakotas) Designated Sensitive Species
(Instruction Memorandum No. MT-2004-082)

<i>Species</i>	<i>In Range yes/no)*</i>	<i>Habitat Present (yes/no)**</i>	<i>Effects Determination</i>
Fish			
Blue sucker	Y	Y	Occurs in the Missouri River.
Northern redbelly X Finescale dace	Y	Y	Occurs in the tributaries of the Missouri River.
Paddlefish	Y	Y	Occurs in the Missouri River.
Pearl dace	Y	Y	Occurs in the tributaries of the Missouri River.
Sauger	Y	Y	Occurs in the Missouri River.
Sicklefin chub	Y	?	Occurs in the tributaries of the Missouri River.
Sturgeon chub	Y	?	Occurs in the tributaries of the Missouri River.
Mammals			
Black-tailed prairie dog	Y	Y	Occurs within the Monument. Benefits from livestock grazing.
Long-legged myotis bat	Y	Y	Known to occur within the Monument.
Long-eared myotis bat	Y	Y	Known to occur within the Monument.
Townsend's big-eared bat	Y	Y	Known to occur within the Monument.
Reptiles and Amphibians			
Great plains toad	Y	Y	Known to occur within the Monument.
Greater short-horned lizard	Y	Y	Known to occur within the Monument. Potential loss of individuals from traffic.
Northern leopard frog	Y	Y	Known to occur within the Monument.
Plains spadefoot	Y	Y	Known to occur within the Monument.
Snapping turtle	Y	Y	Occurs in the Missouri River and its banks. Nesting can be affected by recreational and grazing use of muddy banks
Spiny softshell turtle	Y	Y	Occurs in the Missouri River and its banks. Nesting can be affected by recreational and grazing use of muddy banks.
Western hog-nosed snake	Y	Y	Could occur in some parts of the Monument, but not documented.
Birds			
Bairds sparrow	Y	Y	Small amount of potential grasslands habitat. Potential disturbance from traffic.
Black Tern	Y	Y	No nesting colonies have been identified within the Monument.
Brewer's sparrow	Y	?	In the range of the species; could exist in the Monument, but not confirmed.
Burrowing owl	Y	Y	Nesting and feeding areas on prairie dogs towns occur within the Monument.
Chestnut-collared Longspur	Y	Y	Potential disturbance from traffic.
Ferruginous hawk	Y	Y	Occurs within the Monument, but no nests have been identified. Potential disturbance from traffic.
Franklin's gull	Y	Y	Likely occurs on some wetlands within the Monument, although not documented.

Golden eagle	Y	Y	Occurs within the Monument, but no nests have been identified.
Greater sage-grouse	Y	Y	Nesting , breeding, & wintering occurs within the Monument, but no nests have been identified. Potential disturbance from traffic and oil & gas development.
Loggerhead shrike	Y	Y	Occurs within the Monument, but no nests have been identified. Potential disturbance from traffic.
Long-billed curlew	Y	Y	Occurs within the Monument, but no nests have been identified. Potential disturbance from traffic.
Marbled godwit	Y	Y	Occurs within the Monument, but no nests have been identified.
McCown's longspur	Y	Y	Likely occurs within the Monument. Potential disturbance from traffic.
Mountain plover	Y	Y	Two prairie dog towns have been identified as nesting habitat within the Monument.
Peregrine falcon	Y	Y	Individuals have been observed and hacking has occurred within the Monument, but no nests are currently documented.
Red-headed woodpecker	Y	Y	Has potential to occur in cottonwood/green ash galleries along the Missouri River, but none have been recorded.
Sage thrasher	Y ?	Y	At the edge of their range; could exist in the Monument, but not confirmed.
Sprague's pipit	Y	Y	Occurs within the Monument. Potential disturbance from traffic.
Swainson's hawk	Y	Y	Occurs within the Monument, but no nests have been identified. Potential disturbance from traffic.
White-faced ibis	Y	Y	Is within the range and habitat occurs along the Missouri River, but none have been documented within the Monument.
Willet	Y	Y	Occurs within the Monument. Potential disturbance from traffic.
Wilson's phalarope	Y	Y	Occurs within the Monument. Potential disturbance from traffic.

*Range of species will indicate whether there is potential for a species to occur within the area, based on distribution determined by Fish, Wildlife & Parks, Natural Heritage, or other researchers. This does not guarantee presence.

**If suitable habitat is within the range of a species, that species is assumed to use the available habitat. This is not a guarantee of the presence of that species within the analysis area.

APPENDIX M

Soil Survey Geographic (SSURGO)

Soil Mapping Units and Characteristics of BLM Lands (by Soil Survey Area)

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe		Prime Farmland Soil	Ecological Site		Soil Map Unit Acres
			Water Erosion Hazard	Wind Erosion Hazard		Hydric Soil		
BLAINE COUNTY - SSA 608								
1	ABSHER	0 - 4					Dense clay, 10-14 in. Ppt* zone, glaciated plains, central	19
	NOBE	0 - 4					Saline upland, 10-14 in. Ppt zone, glaciated plains, central	
2	ASSINNIBOINE	0 - 4		X			Sandy, 10-14 in. Ppt zone, glaciated plains, central	135
3	ATTEWAN	0 - 4				X ³	Silty, 10-14 in. Ppt zone, glaciated plains, central	34
6	BADLAND ¹	35 - 70	X					33,639
11	BASCOVY	2 - 6					Clayey, 10-14 in. Ppt zone, sedimentary plains, central	2,848
12	BASCOVY	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central	2,272
	LISAM	4 - 8					Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
	DILTS	4 - 8					Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
19	BENZ	0 - 4					Saline upland, 10-14 in. Ppt zone, glaciated plains, central	288
25	CABBART	8 - 35	X				Shallow, 10-14 in. Ppt zone, sedimentary plains, central	1,371
	DELPOINT	8 - 15					Silty, 10-14 in. Ppt zone, sedimentary plains, central	
27	CABBART	25 - 60	X				Shallow, 10-14 in. Ppt zone, sedimentary plains, central	16,597
	ROCK OUTCROP ¹							15
28	CABBART	15 - 60	X				Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
	YAMAC	15 - 25	X				Thin silty, 10-14 in. Ppt zone, sedimentary plains, central	
	ROCK OUTCROP ¹							46
36	CREED	0 - 4					Silty, 10-14 in. Ppt zone, sedimentary plains, central	
	GERDRUM	0 - 4					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	
38	DELPOINT	2 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central	291
	CABBART	2 - 8					Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
39	DIMMICK CLAY	0 - 1			X		Wet meadow, 10-14 in. Ppt zone, glaciated plains, central	36
41	ETHRIDGE	0 - 4					Silty, 10-14 in. Ppt zone, glaciated plains, central	6
47	GLENDIVE	0 - 2		X			Sandy, 10-14 in. Ppt zone, glaciated plains, central	1
48	HANLY	0 - 4		X			Sands, 10-14 in. Ppt zone, glaciated plains, central	1
55	HAVRE	0 - 2					Silty, 10-14 in. Ppt zone, glaciated plains, central	65
56	HAVRE	0 - 2					Silty, 10-14 in. Ppt zone, glaciated plains, central	1
59	HAVRE	0 - 2					Overflow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	1,614
	HANLY	0 - 2		X			Overflow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
	GLENDIVE	0 - 2		X			Overflow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
65	HEDDOES	15 - 45	X				Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	33
	BELAIN	25 - 60	X				Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
	CASTNER	25 - 60	X				Thin silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
79	LISAM	8 - 35	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	18,870
	DILTS	8 - 35	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
	LISAM	25 - 45	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
	DILTS	25 - 45	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	64,269
	ROCK OUTCROP ¹							

* Ppt = Precipitation

1. Miscellaneous area. Rock outcrop = areas of exposed bedrock.
2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe		Prime Farmland Soil	Ecological Site		Soil Map Unit Acres
			Water Erosion Hazard	Wind Erosion Hazard		Hydric Soil		
82	LISAM	25 - 45	X			Shallow, 10-14 in. Ppt zone, glaciated plains, central	93	
	WABEK	15 - 35	X			Shallow to gravel, 10-14 in. Ppt zone, glaciated plains, central		
85	MARMARTH	2 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, central		
	CABBART	2 - 8				Shallow, 10-14 in. Ppt zone, glaciated plains, central	205	
88	MARVAN	0 - 4				Clayey, 10-14 in. Ppt zone, sedimentary plains, central		
89	MARVAN	2 - 8				Clayey, 10-14 in. Ppt zone, sedimentary plains, central		
	BASCOVY	2 - 8				Clayey, 10-14 in. Ppt zone, sedimentary plains, central	3,951	
111	SHAAK	0 - 4				Silty, 10-14 in. Ppt zone, glaciated plains, central		
112	SHAAK	0 - 4				Silty, 10-14 in. Ppt zone, glaciated plains, central		
	GERDRUM	0 - 4				Dense clay, 10-14 in. Ppt zone, glaciated plains, central	106	
127	TWILIGHT	4 - 8		X		Sandy, 10-14 in. Ppt zone, sedimentary plains, central		
	RIEDEL	4 - 8		X		Shallow, 10-14 in. Ppt zone, sedimentary plains, central		
128	TWILIGHT	8 - 15		X		Sandy, 10-14 in. Ppt zone, sedimentary plains, central	104	
	RIEDEL	8 - 20		X		Shallow, 10-14 in. Ppt zone, sedimentary plains, central		
131	USTIC TORRIFLUVENTS	0 - 4				Subirrigated, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
132	VANDA	0 - 2				Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	27	
134	VANDA	2 - 8				Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		
	NOBE	2 - 8				Saline upland, 10-14 in. Ppt zone, sedimentary plains, central		
137	WABEK	8 - 35	X			Shallow to gravel, 10-14 in. Ppt zone, glaciated plains, central	23	
147	YAMAC	2 - 4				Silty, 10-14 in. Ppt zone, sedimentary plains, central		
148	YAMAC	0 - 4				Silty, 10-14 in. Ppt zone, sedimentary plains, central		
	BENZ	0 - 4				Saline upland, 10-14 in. Ppt zone, sedimentary plains, central	2,651	
149	YAMAC	15 - 25	X			Silty, 10-14 in. Ppt zone, sedimentary plains, central		
	WABEK	25 - 45	X			Shallow to gravel, 10-14 in. Ppt zone, sedimentary plains, central		

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15E	LAMBETH	8 - 25	X				Thin silty, 10-14 in. Ppt zone, glaciated plains, north	88
15F	LAMBETH	25 - 70	X				Thin silty, 10-14 in. Ppt zone, glaciated plains, north	918
16B	DEGRAND	0 - 4				X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	
21E	CABBART	8 - 25	X				Shallow, 10-14 in. Ppt zone, glaciated plains, north	
	DELPOINT	8 - 25	X				Thin silty, 10-14 in. Ppt zone, glaciated plains, north	71
22F	HILLON	25 - 60	X				Thin silty, 10-14 in. Ppt zone, glaciated plains, north	
27B	ATTEWAN	0 - 4				X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	
28	NISHON	0 - 1				X	Overflow, 10-14 in. Ppt zone, glaciated plains, north	15
30B	MARVAN	0 - 4					Clayey, 10-14 in. Ppt zone, glaciated plains, north	
30C	MARVAN	4 - 8					Clayey, 10-14 in. Ppt zone, glaciated plains, north	
32B	KOBASE	0 - 4					Clayey, 10-14 in. Ppt zone, glaciated plains, north	1
32D	KOBASE	4 - 8					Clayey, 10-14 in. Ppt zone, glaciated plains, north	
33A	PHILLIPS	4 - 8					Silty, 10-14 in. Ppt zone, glaciated plains, north	

- * Ppt = Precipitation
1. Miscellaneous area. Rock outcrop = areas of exposed bedrock.
2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe Water Erosion Hazard	Severe Wind Erosion Hazard	Prime Farmland Soil	Ecological Site	Soil Map Unit Acres
35B	ASSINNIBOINE	0 - 4		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	31
36B	CHINOOK	0 - 4		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	110
36C	CHINOOK	4 - 8		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	73
37B	EVANSTON	0 - 4			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	295
37C	EVANSTON	4 - 8			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	221
38B	ETHRIDGE	0 - 4			X ³	Clayey, 10-14 in. Ppt zone, glaciated plains, north	349
39B	ASSINNIBOINE	0 - 4			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	22
48A	VANDA	0 - 2				Dense clay, 10-14 in. Ppt zone, glaciated plains, north	13
48C	VANDA	2 - 8				Dense clay, 10-14 in. Ppt zone, glaciated plains, north	78
55B	LIHEN	0 - 6		X		Sands, 10-14 in. Ppt zone, glaciated plains, north	13
58B	LONNA	0 - 4				Clayey, 10-14 in. Ppt zone, glaciated plains, north	9
58C	LONNA	4 - 8				Clayey, 10-14 in. Ppt zone, glaciated plains, north	38
60A	HAVRE	0 - 2			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	212
73B	YETULL	0 - 6		X		Sands, 10-14 in. Ppt zone, glaciated plains, north	13
	LONESOME	0 - 6		X		Sands, 10-14 in. Ppt zone, glaciated plains, north	
77F	TINSLEY	15 - 45		X		Gravel, 10-14 in. Ppt zone, glaciated plains, north	1
79B	YAMACALL	0 - 4			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	205
79C	YAMACALL	4 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	639
79D	YAMACALL	8 - 15				Silty, 10-14 in. Ppt zone, glaciated plains, north	175
81A	GLENDAVE	0 - 2		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	156
90A	HARLAKE	0 - 1				Clayey, 10-14 in. Ppt zone, glaciated plains, north	52
93F	YETULL	15 - 45		X		Thin sandy, 10-14 in. Ppt zone, glaciated plains, north	256
94B	BUSBY	0 - 4		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	25
94C	BUSBY	4 - 8		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	240
94D	BUSBY	8 - 15		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	292
96B	MACAR	0 - 4			X ³	Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	33
98B	KREMLIN	0 - 4			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	188
98C	KREMLIN	4 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	98
99	RIVRA	0 - 2		X		Greater than 10% canopy cover of deciduous trees	191
	HANLY	0 - 2		X		Greater than 10% canopy cover of deciduous trees	
141B	MEGONOT	0 - 4				Clayey, 10-14 in. Ppt zone, glaciated plains, north	28
	WEINGART	0 - 2				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	
	DELPOINT	0 - 4				Silty, 10-14 in. Ppt zone, glaciated plains, north	
142C	MEGONOT	2 - 8				Clayey, 10-14 in. Ppt zone, glaciated plains, north	19
	KOBASE	2 - 8				Clayey, 10-14 in. Ppt zone, glaciated plains, north	
	DELPOINT	2 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	
200	BADLAND ¹		X				2,293
211F	CABBART	25 - 70	X			Shallow, 10-14 in. Ppt zone, glaciated plains, north	10,920
	YAWDIN	25 - 70	X			Shallow clay, 10-14 in. Ppt zone, glaciated plains, north	
	ROCK OUTCROP ¹						

* Ppt = Precipitation

1. Miscellaneous area. Rock outcrop = areas of exposed bedrock.
2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe		Prime Farmland Soil	Ecological Site	Soil Map Unit Acres
			Water Erosion Hazard	Wind Erosion Hazard			
212F	CABBART	25 - 70	X			Shallow, 10-14 in. Ppt zone, glaciated plains, north	119
	HILLON	25 - 70	X			Thin silty, 10-14 in. Ppt zone, glaciated plains, north	
221E	HILLON	8 - 25	X			Thin silty, 10-14 in. Ppt zone, glaciated plains, north	
	KEVIN	8 - 15				Silty, 10-14 in. Ppt zone, glaciated plains, north	
224E	HILLON	8 - 25	X			Thin silty, 10-14 in. Ppt zone, glaciated plains, north	1
	JOPLIN	8 - 15				Silty, 10-14 in. Ppt zone, glaciated plains, north	
227F	HILLON	25 - 70	X			Thin silty, 10-14 in. Ppt zone, glaciated plains, north	40
	FLEAK	25 - 70	X	X		Shallow, 10-14 in. Ppt zone, glaciated plains, north	
	ROCK OUTCROP ¹						
251E	BASCOVY	2 - 8				Thin clayey, 10-14 in. Ppt zone, glaciated plains, north	785
	NELDORÉ	2 - 8				Shallow clay, 10-14 in. Ppt zone, glaciated plains, north	
252C	BASCOVY	2 - 8				Clayey, 10-14 in. Ppt zone, glaciated plains, north	58
	MARVAN	2 - 4				Clayey, 10-14 in. Ppt zone, glaciated plains, north	
272C	ATTEWAN	2 - 4				Silty, 10-14 in. Ppt zone, glaciated plains, north	23
	TINSLEY	2 - 8		X		Gravel, 10-14 in. Ppt zone, glaciated plains, north	
301A	MARVAN	0 - 2				Clayey, 10-14 in. Ppt zone, glaciated plains, north	40
	VANDA	0 - 2				Dense clay, 10-14 in. Ppt zone, glaciated plains, north	
301C	MARVAN	2 - 8				Clayey, 10-14 in. Ppt zone, glaciated plains, north	126
	VANDA	2 - 8				Dense clay, 10-14 in. Ppt zone, glaciated plains, north	
311B	FERD	0 - 4				Silty, 10-14 in. Ppt zone, glaciated plains, north	40
	CREED	0 - 4				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	
	GERDRUM	0 - 4				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	58
311C	FERD	4 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	
	CREED	4 - 8				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	71
	GERDRUM	4 - 8				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	
331B	PHILLIPS	0 - 4				Silty, 10-14 in. Ppt zone, glaciated plains, north	60
	ELLOAM	0 - 4				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	
331C	PHILLIPS	4 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	8
	ELLOAM	4 - 8				Clay pan, 10-14 in. Ppt zone, glaciated plains, north	
361B	FORTBENTON	0 - 4		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	19
362C	CHINOOK	2 - 10		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	
	YETULL	2 - 10		X		Sands, 10-14 in. Ppt zone, glaciated plains, north	18
363B	COZBERG	2 - 10		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	
	CHINOOK	2 - 10		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	86
363C	CHINOOK	0 - 4		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	
	LIHEN	0 - 4		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	193
364B	CHINOOK	0 - 4			X ³	Silty, 10-14 in. Ppt zone, glaciated plains, north	
365B	FORTBENTON	0 - 6		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	129
	CHINOOK	0 - 6		X		Sandy, 10-14 in. Ppt zone, glaciated plains, north	
372C	EVANSTON	2 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	11
	YAMACALL	2 - 8				Silty, 10-14 in. Ppt zone, glaciated plains, north	

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4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe			Prime			Ecological Site	Soil Map Unit Acres
			Water Erosion Hazard	Wind Erosion Hazard	Hydric Soil	Farmland Soil				
375B	EVANSTON	0 - 4						Silty, 10-14 in. Ppt zone, glaciated plains, north	17	
	LONNA	0 - 4						Silty, 10-14 in. Ppt zone, glaciated plains, north		
410	ROCK OUTCROP ¹								578	
	FLEAK	25 - 70	X	X				Shallow, 10-14 in. Ppt zone, glaciated plains, north		
421C	JOPLIN	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north	42	
	HILLON	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north		
422C	MARMARTH	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north	37	
441C	KEVIN	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north		
	HILLON	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north	10	
442C	KEVIN	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north		
	ELLOAM	2 - 8						Clay pan, 10-14 in. Ppt zone, glaciated plains, north	72	
460	LACEYCREEK	8 - 25						Greater than 10% canopy cover of deciduous trees		
503B	TELSTAD	0 - 4				X ³		Silty, 10-14 in. Ppt zone, glaciated plains, north	25	
	JOPLIN	0 - 4				X ³		Silty, 10-14 in. Ppt zone, glaciated plains, north		
503C	TELSTAD	4 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north	96	
	JOPLIN	4 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north		
521B	THOENY	0 - 4						Clay pan, 10-14 in. Ppt zone, glaciated plains, north	1	
	ELLOAM	0 - 4						Clay pan, 10-14 in. Ppt zone, glaciated plains, north		
	ABSHER	0 - 4						Dense clay, 10-14 in. Ppt zone, glaciated plains, north		
561B	SCOBEY	0 - 4				X ³		Silty, 10-14 in. Ppt zone, glaciated plains, north		
	KEVIN	0 - 4				X ³		Silty, 10-14 in. Ppt zone, glaciated plains, north	70	
561C	SCOBEY	4 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north		
	KEVIN	4 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north	98	
601A	HAVRE	0 - 1						Silty, 10-14 in. Ppt zone, glaciated plains, north		
	GLENDIVE	0 - 1		X				Sandy, 10-14 in. Ppt zone, glaciated plains, north	47	
602A	HAVRE	0 - 1				X ³		Clayey, 10-14 in. Ppt zone, glaciated plains, north		
603A	HAVRE	0 - 2						Greater than 10% canopy cover of deciduous trees	827	
	GLENDIVE	0 - 2		X				Greater than 10% canopy cover of deciduous trees		
605C	YAMACALL	2 - 8						Silty, 10-14 in. Ppt zone, glaciated plains, north	466	
	HAVRE	0 - 2						Overflow, 10-14 in. Ppt zone, glaciated plains, north		
653F	FLEAK	25 - 70	X	X				Shallow, 10-14 in. Ppt zone, glaciated plains, north	417	
	TWILIGHT	25 - 45	X	X				Thin sandy, 10-14 in. Ppt zone, glaciated plains, north		
	YETULL	25 - 70	X	X				Thin sandy, 10-14 in. Ppt zone, glaciated plains, north		
654F	FLEAK	25 - 70	X	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central		
	TWILIGHT	25 - 45	X	X				Thin sandy, 10-14 in. Ppt zone, glaciated plains, north	1,112	
	ROCK OUTCROP ¹									
661E	TWILIGHT	8 - 25		X				Thin sandy, 10-14 in. Ppt zone, glaciated plains, north	479	
	FLEAK	8 - 25		X				Shallow, 10-14 in. Ppt zone, glaciated plains, north		
731F	YETULL	15 - 45		X				Sands, 10-14 in. Ppt zone, glaciated plains, north	13	
	DUNE LAND ¹									

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4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe			Ecological Site			Soil Map Unit Acres
			Water Erosion Hazard	Wind Erosion Hazard	Hydric Soil	Prime Farmland Soil			
793B	YAMACALL	6 - 4					Clayey, 10-14 in. Ppt zone, glaciated plains, north		165
793C	YAMACALL	4 - 8					Clayey, 10-14 in. Ppt zone, glaciated plains, north		75
795C	YAMACALL	2 - 8					Clayey, 10-14 in. Ppt zone, glaciated plains, north		150
	BENZ	2 - 8					Saline upland, 10-14 in. Ppt zone, glaciated plains, north		
795D	YAMACALL	8 - 15					Clayey, 10-14 in. Ppt zone, glaciated plains, north		13
	BENZ	8 - 15					Saline upland, 10-14 in. Ppt zone, glaciated plains, north		
892F	WHITLASH	25 - 60	X				Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		36
	BELAIN	25 - 45	X				Silty, steep, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
	ROCK OUTCROP ¹								
925F	SUNBURST	25 - 70	X				Thin clayey, 10-14 in. Ppt zone, glaciated plains, north		189
	LAMBETH	25 - 70	X				Thin silty, 10-14 in. Ppt zone, glaciated plains, north		
941D	BUSBY	4 - 15		X			Sandy, 10-14 in. Ppt zone, glaciated plains, north		79
	TWILIGHT	8 - 15		X			Sandy, 10-14 in. Ppt zone, glaciated plains, north		
971F	NELDORÉ	25 - 60	X				Shallow clay, 10-14 in. Ppt zone, glaciated plains, north		8,016
	BASCOVY	25 - 45	X				Thin clayey, 10-14 in. Ppt zone, glaciated plains, north		
972F	NELDORÉ	25 - 70	X				Shallow clay, 10-14 in. Ppt zone, glaciated plains, north		5,387
	ROCK OUTCROP ¹								
974F	NELDORÉ	25 - 70	X				Shallow clay, 10-14 in. Ppt zone, glaciated plains, north		846
	HILLON	25 - 70	X				Thin silty, 10-14 in. Ppt zone, glaciated plains, north		

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3	ABOR	15 - 45	X				Clayey, 10-14 in. Ppt zone, sedimentary plains, central		914
	THEBO	15 - 45	X				Clayey, 10-14 in. Ppt zone, sedimentary plains, central		
	CRAGO	15 - 45	X				Silty, limy, 10-14 in. Ppt zone, sedimentary plains, central		
4	ABOR	4 - 15					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		56
	YAWDIM	4 - 15					Shallow, 10-14 in. Ppt zone, sedimentary plains, central		
22	ASHUELOT VAR.	0 - 4					Shallow, 10-14 in. Ppt zone, sedimentary plains, central		2
	CRAGO	0 - 4					Silty, limy, 10-14 in. Ppt zone, sedimentary plains, central		
37	CABBA	4 - 8					Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		4
	DONEY	4 - 8					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
	WAYDEN	4 - 8					Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
51	CREED	0 - 2					Silty, 10-14 in. Ppt zone, sedimentary plains, central		38
	GERDRUM	0 - 2					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		
52	CREED	2 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central		8
	GERDRUM	2 - 8					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		
55	DANVERS	0 - 2				X ²	Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		3
62	DELPOINT	4 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central		78
	YAWDIM	4 - 8					Shallow, 10-14 in. Ppt zone, sedimentary plains, central		

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4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe Water Erosion Hazard	Severe Wind Erosion Hazard	Prime Farmland Soil	Hydric Soil	Ecological Site	Soil Map Unit Acres
64	DILTS	15 - 50	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	41,107
	JULIN	15 - 25	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
	ROCK OUTCROP ¹							
65	DILTS	4 - 50	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	4,921
	THEBO	4 - 45	X				Clayey, 10-14 in. Ppt zone, sedimentary plains, central	
	NELDOR	4 - 60	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
67	DONEY	15 - 60	X				Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	161
	WAYDEN	15 - 50	X				Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
68	DONEY	8 - 15					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	1
	WINDHAM	8 - 15					Silty, limy, 15-19 in. Ppt zone, northern Rocky Mtn. valleys, central	
69	DONEY	15 - 45	X				Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	67
	WINDHAM	25 - 45	X				Silty, limy, 15-19 in. Ppt zone, northern Rocky Mtn. valleys, central	
75	DOUGHTY	0 - 2					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	26
	SIPPLE	0 - 2					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
80	ELTSAC	8 - 25	X				Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	1
	NORBER	8 - 25	X				Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
82	ENBAR	0 - 2			X ²		Subirrigated, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	92
87	ETHRIDGE	0 - 2			X ³		Clayey, 10-14 in. Ppt zone, sedimentary plains, central	13
88	ETHRIDGE	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central	194
90	EVANSTON	0 - 2					Silty, 10-14 in. Ppt zone, sedimentary plains, central	34
91	EVANSTON	2 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central	40
97	FARNUF	0 - 4			X ²		Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	16
103	FLASHER	25 - 35	X	X			Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	
	TALLY	25 - 45	X	X			Sandy, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	81
	ROCK OUTCROP ¹							
104	FLOWEREE	2 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central	204
111	GERDRUM	0 - 4					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	325
112	GERDRUM	0 - 2					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	107
	ABSHER	0 - 2					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	
113	GERDRUM	2 - 8					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	265
	ABSHER	2 - 8					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	
115	HARLEM	0 - 2			X ³		Overflow, 10-14 in. Ppt zone, sedimentary plains, central	124
116	HAVRE	0 - 2					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	134
117	HAVRE	0 - 2					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	261
118	HAVRE	0 - 2					Overflow, 10-14 in. Ppt zone, sedimentary plains, central	4,969
	HARLEM	0 - 2					Overflow, 10-14 in. Ppt zone, sedimentary plains, central	
141	KOBAR	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central	1,052
142	KOBAR	2 - 25					Clayey, 10-14 in. Ppt zone, sedimentary plains, central	1,778
144	KORCHEA	0 - 2					Silty, 20+ in. Ppt zone, northern Rocky Mtn. foothills, central	94
	FRAZER	0 - 2					Overflow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	

* Ppt = Precipitation

1. Miscellaneous area. Rock outcrop = areas of exposed bedrock.
2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe			Ecological Site			Soil Map Unit Acres
			Water Erosion Hazard	Wind Erosion Hazard	Prime Farmland Soil	Hydric Soil			
146	LAWTHER	4 - 8					Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		1
160	MARIAS	0 - 2					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		31
161	MARIAS	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		177
162	MARMARTH	2 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central		26
163	MARMARTH	4 - 8					Silty, 10-14 in. Ppt zone, sedimentary plains, central		328
165	MARTINSDALE	4 - 8					Shallow, 10-14 in. Ppt zone, sedimentary plains, central		13
	JUDITH	4 - 8					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
174	NELDOR	4 - 25	X				Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		6,261
	THEBO	4 - 25	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central		
175	NELDOR	25 - 60	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central		6,907
	THEBO	25 - 45	X				Clayey, 10-14 in. Ppt zone, sedimentary plains, central		
176	NELDOR	15 - 60	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central		23,073
	ROCK OUTCROP ¹								
178	NESDA	0 - 2					Greater than 10% canopy cover of deciduous trees		77
	SUDWORTH	0 - 2					Greater than 10% canopy cover of deciduous trees		
182	PENDROY	0 - 4					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		158
190	ROCK OUTCROP ¹								17,212
199	SHAMBO	0 - 2			X ²		Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		5
200	SHAMBO	2 - 8					Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		23
215	TALLY	2 - 8		X	X ²		Sandy, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		63
216	TALLY	4 - 25	X	X			Sandy, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		1
	FLASHER	8 - 25	X	X			Shallow, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
221	TAMANEEN	2 - 4			X ³		Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		2
	JUDITH	2 - 4			X ³		Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		
222	TANNA	0 - 4			X ³		Clayey, 10-14 in. Ppt zone, sedimentary plains, central		8
223	TANNA	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		140
	ABOR	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		
233	THEBO	2 - 8					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		326
234	THEBO	8 - 25	X				Clayey, 10-14 in. Ppt zone, sedimentary plains, central		2,774
235	THEBO	4 - 15					Clayey, 10-14 in. Ppt zone, sedimentary plains, central		
	WEINGART	4 - 8					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		1,846
	ABSHER	4 - 8					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		
252	VANDA	0 - 8					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		151
253	VANDA	0 - 4					Dense clay, 10-14 in. Ppt zone, sedimentary plains, central		220
	NOBE	0 - 4					Saline upland, 10-14 in. Ppt zone, sedimentary plains, central		
275	WINIFRED	15 - 45	X				Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		45
	WINDHAM	15 - 45	X				Silty, limy, 15-19 in. Ppt zone, northern Rocky Mtn. valleys, central		
	ELTSAC	15 - 45	X				Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central		

* Ppt = Precipitation
1. Miscellaneous area. Rock outcrop = areas of exposed bedrock.
2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe			Hydric Soil	Prime Farmland Soil		Ecological Site	Soil Map Unit Acres
			Water Erosion Hazard	Severe Water Erosion Hazard	Wind Erosion Hazard		Soil	Soil		
277	WORK	2 - 8							Silty, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	9
278	YAMAC	2 - 8							Silty, 10-14 in. Ppt zone, sedimentary plains, central	587
279	YAMAC	4 - 25							Silty, 10-14 in. Ppt zone, sedimentary plains, central	2,583
	DELPOINT	4 - 25	X						Silty, 10-14 in. Ppt zone, sedimentary plains, central	
	YAWDIM	4 - 25	X						Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
281	YAWDIM	8 - 50	X						Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
	ABOR	8 - 45	X						Clayey, 10-14 in. Ppt zone, sedimentary plains, central	2,364
	RENTSAC	8 - 60	X						Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
282	YAWDIM	25 - 50	X						Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
	DELPOINT	25 - 45	X						Silty, 10-14 in. Ppt zone, sedimentary plains, central	
	ROCK OUTCROP ¹									9,065
PHILLIPS COUNTY - SSA 641										
30A	MARVAN	0 - 2							Clayey, 10-14 in. Ppt zone, glaciated plains, central	126
37C	EVANSTON	4 - 8							Silty, 10-14 in. Ppt zone, glaciated plains, central	17
81A	GLENDIVE	0 - 2							Silty, 10-14 in. Ppt zone, glaciated plains, central	156
101E	BARKOF	8 - 25							Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	40
	WINDHAM	8 - 25							Silty, limy, 15-19 in. Ppt zone, northern Rocky Mtn. valleys, central	
241B	BENZ	0 - 4							Saline upland, 10-14 in. Ppt zone, glaciated plains, central	45
	VANDA	0 - 4							Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
250E	BASCOVY	8 - 25	X						Thin clayey, 10-14 in. Ppt zone, sedimentary plains, central	382
	NELDRE	8 - 25	X						Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
	WEINGART	8 - 15							Dense clay, 10-14 in. Ppt zone, sedimentary plains, central	
251C	BASCOVY	2 - 8							Clayey, 10-14 in. Ppt zone, sedimentary plains, central	
	NELDRE	2 - 8							Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	1,529
301C	MARVAN, SALINE	2 - 8							Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
	MARVAN	2 - 8							Clayey, 10-14 in. Ppt zone, glaciated plains, central	38
302B	MARVAN, SALINE	0 - 8							Dense clay, 10-14 in. Ppt zone, glaciated plains, central	625
	VANDA	0 - 8							Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
322C	KOBASE	2 - 8							Clayey, 10-14 in. Ppt zone, glaciated plains, central	28
	MEGONOT	2 - 8							Clayey, 10-14 in. Ppt zone, glaciated plains, central	
392B	CREED	0 - 4							Clay pan, 10-14 in. Ppt zone, glaciated plains, central	159
	GERDRUM	0 - 4							Clay pan, 10-14 in. Ppt zone, glaciated plains, central	
521B	ELLOAM	0 - 4							Clay pan, 10-14 in. Ppt zone, glaciated plains, central	2,030
	ABSHER	0 - 4							Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
563C	SCOBAY	2 - 8							Silty, 10-14 in. Ppt zone, glaciated plains, central	6
	KEVIN	2 - 8							Silty, 10-14 in. Ppt zone, glaciated plains, central	
601A	HAVRE	0 - 2							Silty, 10-14 in. Ppt zone, glaciated plains, central	51
	HARLAKE	0 - 2							Silty, 10-14 in. Ppt zone, glaciated plains, central	
	GLENDIVE	0 - 2							Clayey, 10-14 in. Ppt zone, glaciated plains, central	
792C	YAMACALL	2 - 8							Silty, 10-14 in. Ppt zone, glaciated plains, central	
871B	TAMANEEN	0 - 4					X ³		Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	14
	DANVERS	0 - 4					X ³		Clayey, 15-19 in. Ppt zone, northern Rocky Mtn. foothills, central	

* Ppt = Precipitation

1. Miscellaneous area. Rock outcrop = areas of exposed bedrock.
2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

Soil Map Unit Symbol	Major Soil Series	Slope Range (%)	Severe Water Erosion Hazard	Severe Wind Erosion Hazard	Hydric Soil	Prime Farmland Soil	Ecological Site	Soil Map Unit Acres
925C	SUNBURST	2 - 8					Clayey, 10-14 in. Ppt zone, glaciated plains, central	557
	BASCOVY	2 - 8					Clayey, 10-14 in. Ppt zone, glaciated plains, central	
	WEINGART	2 - 8					Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
973E	NELDORE, COOL	8 - 35	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	223
	BASCOVY	8 - 35	X				Thin clayey, 10-14 in. Ppt zone, sedimentary plains, central	
	CABBART	8 - 35	X				Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
1021E	TWILIGHT	8 - 35		X			Sandy-Steep, 10-14 in. Ppt zone, sedimentary plains, central	2,242
	YAWDIM	8 - 35	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
	ELLOAM	0 - 6					Clay pan, 10-14 in. Ppt zone, glaciated plains, central	
1052B	THOENY	0 - 6					Clay pan, 10-14 in. Ppt zone, glaciated plains, central	152
	WEINGART	4 - 15					Clay pan, 10-14 in. Ppt zone, glaciated plains, central	
	VAEDA	4 - 8					Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
1059E	BASCOVY	4 - 25	X				Thin clayey, 10-14 in. Ppt zone, glaciated plains, central	50
	TWILIGHT	4 - 15		X			Sandy, 10-14 in. Ppt zone, sedimentary plains, central	
	CABBART	4 - 15					Shallow, 10-14 in. Ppt zone, sedimentary plains, central	
1066D	MARMARTH	4 - 15					Silty, 10-14 in. Ppt zone, sedimentary plains, central	677
	HARLAKE	0 - 2					Clayey, 10-14 in. Ppt zone, glaciated plains, central	
	MARVAN	0 - 4					Clayey, 10-14 in. Ppt zone, glaciated plains, central	
1090B	NELDORE	8 - 35	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	1,531
	BASCOVY	8 - 35	X				Thin clayey, 10-14 in. Ppt zone, sedimentary plains, central	
	CREED	0 - 4					Clay pan, 10-14 in. Ppt zone, glaciated plains, central	
1251E	GERDRUM	0 - 4					Clay pan, 10-14 in. Ppt zone, glaciated plains, central	8,363
	ABSHER	0 - 4					Dense clay, 10-14 in. Ppt zone, glaciated plains, central	
	ROCK OUTCROP ¹						Saline upland, 10-14 in. Ppt zone, sedimentary plains, central	
1392B	ARSITE	8 - 60	X				Thin clayey, 10-14 in. Ppt zone, glaciated plains, central	495
	SUNBURST	15 - 45	X				Shallow clay, 10-14 in. Ppt zone, glaciated plains, central	
	NELDORE	15 - 45	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
1920F	NELDORE	8 - 60	X				Thin clayey, 10-14 in. Ppt zone, sedimentary plains, central	1,662
	BASCOVY	8 - 45	X				Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
	ROCK OUTCROP ¹						Shallow clay, 10-14 in. Ppt zone, sedimentary plains, central	
1971F	YAWDIM	25 - 70	X				Shallow, 10-14 in. Ppt zone, sedimentary plains, central	6,791
	CABBART	25 - 70	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
	ROCK OUTCROP ¹						Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
1973F	NELDORE, MOIST	15 - 60	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	16,543
	NELDORE	15 - 60	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
	ROCK OUTCROP ¹						Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
1976F	NELDORE	15 - 60	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	4,700
	PINEBREAKS	15 - 45	X				Thin clayey, 10-14 in. Ppt zone, sedimentary plains, central	
	BASCOVY	15 - 45	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	
1977F	VOLBORG	15 - 60	X	X			Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	348
	PINEBREAKS	15 - 45	X				Greater than 10% canopy cover (coniferous), 10-14 in. Ppt zone, sedimentary plains, central	

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2. All areas are prime farmland.
3. Prime farmland if irrigated.
4. Prime farmland if drained.

APPENDIX N

Vegetation Species Common in Riparian Areas

<i>Grasses</i>	<i>Forbs</i>	<i>Shrubs</i>
Alkali sacaton (<i>Sporobolus airoides</i>)	American licorice (<i>Glycyrrhiza lepidota</i>)	Big Sagebrush (<i>Artemisia tridentata</i>)
American sloughgrass (<i>Becmannia syzigachne</i>)	Bull thistle (<i>Cirsium vulgare</i>)	Buffaloberry (<i>Shepherdia argentea</i>)
Barnyardgrass (<i>Echinochloa crusgalli</i>)	Canada thistle (<i>Cirsium arvense</i>)	Chokecherry (<i>Prunus virginiana</i>)
Basin wildrye (<i>Elymus cinereus</i>)	Cinquefoil (<i>Potentilla anserine</i>)	Diamond (Yellow) willow (<i>salix lutea</i>)
Bluejoint reedgrass (<i>Calamagrostis Canadensis</i>)	Cocklebur (<i>Xanthium strumarium</i>)	Golden current (<i>Ribes aureum</i>)
Canada wildrye (<i>Elymus Canadensis</i>)	Common cattail (<i>Typha latifolia</i>)	Gooseberry (<i>Ribes lacustre</i>)
Cheatgrass (<i>Bromus tectorum</i>)	Curled dock (<i>Rumex crispus</i>)	Greasewood (<i>Sarcobatus vermiculatus</i>)
Foxtail barley (<i>Hordeum jubatum</i>)	Curlycup gumweed (<i>Grindelia squarrosa</i>)	Peachleaf willow (<i>Salix amygdaloides</i>)
Green needlegrass (<i>Stipa viridula</i>)	Dandelion (<i>Taraxacum officinale</i>)	Rabbitbrush (<i>Chrysothamnus nauseosus</i>)
Inland saltgrass (<i>Distichlis stricta</i>)	Fanweed (<i>Thlaspi arvense</i>)	Redosier dogwood (<i>Cornus stolonifera</i>)
Intermediate wheatgrass (<i>Agropyron intermedium</i>)	Golden pea (<i>Thermopsis rhombifolia</i>)	Rose (<i>Rosa woodsii</i>)
Japanese brome (<i>Bromus japonicus</i>)	Horsetail (<i>Equisetum variegatum</i>)	Russian olive (<i>Elaeagnus anfastifolia</i>)
June grass (<i>Koeleria cristata</i>)	Lambsquarter (<i>Chenopodium album</i>)	Sandbar willow (<i>Salix exigua</i>)
Kentucky bluegrass (<i>Poa pratensis</i>)	Leafy spurge (<i>Euphorbia esula</i>)	Silver sagebrush (<i>Artemisia cana</i>)
Needle-and-thread (<i>Stipa comata</i>)	Milkweed (<i>Asclepias speciosa</i>)	Skunkbrush sumac (<i>Rhus trilobata</i>)
Nuttall alkaligrass (<i>Puccinellia nuttalliana</i>)	Pepperweed (<i>cardaria draba</i>)	Snowberry (<i>Symphoricarpos occidentalis</i>)
Prairie cordgrass (<i>Spartina pectinata</i>)	Russian knapweed (<i>Centaurea repens</i>)	

<i>Grasses</i>	<i>Forbs</i>	<i>Shrubs</i>
Quack grass (<i>Agropyron repens</i>)	Smartweed (<i>Polygonum amphibium</i>)	
Reed canarygrass (<i>Phalaris arundinacea</i>)	Spotted knapweed (<i>Centaurea maculosa</i>)	
Sixweeks fescue (<i>Festuca octoflora</i>)	White sweetclover (<i>Melilotus alba</i>)	
Slender wheatgrass (<i>Agropyron trachycaulum</i>)	Yarrow (<i>Achillea millefolium</i>)	
Smooth brome (<i>Bromus inermis</i>)	Yellow sweetclover (<i>Melilotus officinalis</i>)	
Tufted hairgrass (<i>Deschampsia caespitosa</i>)		
Western wheatgrass (<i>Agropyron smithii</i>)		
<i>Trees</i>	<i>Grasslike</i>	
Boxelder (<i>Acer negundo</i>)	Alkali bulrush (<i>Scripus maritimus</i>)	
Green ash (<i>Fraxinus pennsylvanica</i>)	Baltic rush (<i>Juncus balticus</i>)	
Narrowleaf cottonwood (<i>Populus angustifolia</i>)	Beaked sedge (<i>Carex rostrata</i>)	
Plains cottonwood (<i>Populus deltoids</i>)	Creeping spikesedge (<i>Eleocharis palustris</i>)	
	Hardstem bulrush (<i>Scripus acutus</i>)	
	Nebraska sedge (<i>Carex nebraskensis</i>)	
	Three-square bulrush (<i>Scripus pungens</i>)	

Appendix O

Noxious/Invasive Plant Species at Recreation Sites

		Noxious/Invasive Plant Species																
		Russian knapweed	leafy spurge	Canada thistle	spotted knapweed	hoary cress	perennial pepperweed	poison hemlock	Russian olive	salt cedar	Dalmatian toadflax	purple loosestrife	houndstongue	black henbane	field bindweed	musk/ scotch thistle	burdock	scentless chamomile
Recreation Site	Evans Bend	x	x	x	x										x			x
	Rowe Island	x	x	x	x				x				x		x			
	Senieurs Reach	x		x			x		x				x					x
	Black Bluff Rapids	x	x	x	x		x	x	x		x		x		x		x	x
	Wood Bottom Boat Ramp	x	x	x	x		x	x	x		x		x		x		x	x
	Coal Banks Landing	x	x	x			x		x						x			
	Little Sandy	x	x	x	x		x		x						x		x	
	Eagle Creek	x	x	x			x					x						
	Monroe Island	x	x	x	x		x		x		x		x					
	Hole-in-the-Wall	x	x	x	x		x			x	x				x			
	Dark Butte	x	x	x	x		x		x									
	Pablo Rapids	x	x	x	x		x		x					x	x			
	Slaughter River	x	x	x					x									
	The Wall	x	x	x			x											
	Judith Landing	x	x	x	x				x									
	McGarry Bar	x	x	x			x											
	Stafford Ferry	x	x	x	x		x										x	
	Gist Bottom	x	x	x			x		x	x						x	x	
	Cow Island Landing	x	x	x			x											
	Woodhawk Rec. Area	x	x	x	x													
	Hideaway	x	x	x	x				x									
	James Kipp Rec. Area	x	x	x		x										x		

APPENDIX P

Rights-of-Way

<i>Holder</i>	<i>ROW No.</i>	<i>Type</i>	<i>Acres</i>	<i>Legal Description</i>
Ayers, Jim and Pat	M91813	Road/Waterline	1.45	T25N R11E, sec. 6
Big Flat Electric Co-op	M57527	Power Line	1.36	T24N R23E, sec. 5, 6
Bureau of Reclamation	M014191	Power Line	5.45	T25N R9E, sec. 23
Chouteau County	M78762	Road	9.03	T25N R10E, sec. 18
Express Pipeline	M82369	Oil/Gas Pipeline	N/A	T26N R12E, sec. 18
Fergus Electric Co-op	M24219	Power Line	4.64	T22N R18E, sec. 3, 4 T23N R18E, sec. 27, 34
	M58077	Power Line	5.36	T22N R17E, sec. 1, 2 T22N R18E, sec. 6, 9
Hamilton Resources Mgmt	M73490	Oil/Gas Pipeline	18.82	T25N R19E, sec. 15, 22-25
	M79166	Oil/Gas Pipeline	.73	T26N R20E, sec. 26
Havre Pipeline	M31621	Oil/Gas Pipeline	6.14	T25N R19E, sec. 15, 27, 28
Hill County Electric Co-op	M59070	Power Line	19.02	T22N R16E, sec. 3, 10 T23N R15E, sec. 30, 31 T23N R16E, sec. 28 T25N R11E, sec. 6 T26N R13E, sec. 29 T26N R21E, sec. 17, 21, 28
	M60030	Power Line	3.00	T23N R14E, sec. 25
Klabzuba	M41268	Oil/Gas Pipeline	28.85	T23N R18E, sec. 13, 14, 24 T23N R19E, sec. 7, 18, 19, 29, 30
Lind, Albert	M01673	Irrigation	1.30	T24N R23E, sec. 5
Macum Energy	M83688	Oil/Gas Pipeline	25.07	T24N R20E, sec. 12 T25N R20E, sec. 1-3, 11, 14, 23, 26, 35 T25N R21E, sec. 6, 7 T26N R20E, sec. 35
	M89564	Oil/Gas Pipeline	2.45	T25N R20E, sec. 4, 10
Mid-Rivers Telephone Co-op	M049342	Phone Line	1.82	T22N R24E, sec. 31
	M73508	Comm Site	.11	T23N R22E, sec. 33
MT Dept of Transportation	M013368	Highway	40.00	T22N R24E, sec. 31
Ocean Energy	M34075	Oil/Gas Pipeline	4.55	T26N R20E, sec. 4, 9
Triangle Telephone Co-op	M39347A	Phone Line	13.82	T22N R16E, sec. 3, 10, 14, 15
	M42864	Phone Line	2.73	T24N R23E, sec. 5, 6 T25N R23E, sec. 31
	M59069	Phone Line	1.41	T25N R10E, sec. 18 T25N R11E, sec. 6 T26N R13E, sec. 32
	M40972	Phone Line	2.45	T26N R21E, sec. 21, 28
Walling, Tom	M91509	Road	.67	T22N R16E, sec. 12

APPENDIX Q

Grazing Allotments

Allotment Number	Allotment Name	Allotment Totals				Percent Allotment in Monument	Grazing Season	Watershed Planning Area
		Acres	AUMs	Acres BLM Land	AUMs BLM Land			
North Side Allotments								
944	Lutge Place	3259	368	2265	90	100	4/15 - 5/31, 10/1 - 11/15	Bears Paw to Breaks
5609	Cabin Creek	13786	1660	6734	762	100	5/1 - 10/31, 12/1 - 3/31	Beauchamp
5610	Antelope Creek	51492	5496	45010	4701	100	5/1 - 12/31	Beauchamp
6164	3 mile ridge	10961	1509	10321	1440	10	4/1 - 5/31	Bears Paw to Breaks
6168	Al's Creek	4577	592	3385	369	75	5/1 - 9/22	Bears Paw to Breaks
6169	Chimney Butte	7773	778	7112	720	30	7/15 - 10/10	Bears Paw to Breaks
6171	Little Suction	1651	163	1405	131	10	6/1 - 6/30	Bears Paw to Breaks
6172	Timber ridge	17604	2485	11599	1662	50	3/1 - 10/22	Bears Paw to Breaks
6181	Bullwhacker	45890	5072	40535	4400	90	4/1 - 2/28	Bears Paw to Breaks
6182	Hay Coulee	12956	1267	12956	1267	100	variable - resource reserve	Bears Paw to Breaks
6192	N. Fk Lion Coulee	9362	1641	3930	592	60	5/15 - 10/01	Bears Paw to Breaks
6193	Lion Coulee	3560	438	3351	410	60	5/15 - 11/15	Bears Paw to Breaks
6194	Spencer Ridge	10198	1022	7250	588	100	5/1 - 10/31	Bears Paw to Breaks
6198	Chase Hill	2665	303	1218	98	60	3/1 - 2/28	Bears Paw to Breaks
6201	Halley	7710	749	3806	441	100	5/15 - 10/19	Bears Paw to Breaks
6203	Golf Bench	6730	1187	3319	230	10	6/1 - 8/31	Bears Paw to Breaks
6207	Ragland Ridge	1228	52	1085	25	70	6/15 - 10/15	Bears Paw to Breaks
6208	Lost Ridge	10452	1080	6253	487	95	5/15 - 11/15	Bears Paw to Breaks
6209	Barnard Ridge	3837	322	3197	279	100	6/1 - 8/30	Bears Paw to Breaks
6211	Black Butte	8305	852	8305	730	100	5/1 - 11/14	Bears Paw to Breaks
6212	Ervin Ridgetop	11251	769	9973	650	100	6/15 - 10/10	Bears Paw to Breaks
6214	Little Bullwhacker	24257	1556	22278	1368	100	5/15 - 10/15	Bears Paw to Breaks
6215	Dark Butte	6976	656	4404	329	90	6/1 - 10/05	Bears Paw to Breaks
6216	Pablo Rapids	3419	168	2644	105	90	6/1 - 9/22	Bears Paw to Breaks
6218	Sneath Common	6700	485	5800	344	100	6/10 - 10/21	Bears Paw to Breaks
6221	Deadman Rapids	1646	110	1646	110	100	7/1 - 9/30	Bears Paw to Breaks
6222	Gallatin Rapids	6443	318	5404	277	100	5/1 - 11/01	Bears Paw to Breaks
6224	Upper Dauphine Rapids	**	**	1663	75	100	5/1 - 11/30	Bears Paw to Breaks
6225	Dauphine Rapids	**	**	214	25	100	6/1 - 8/5	Bears Paw to Breaks
6269	North Timber Ridge	4450	774	1125	145	10	5/15 - 5/31	Bears Paw to Breaks
6282	Greasewood Bottom	673	124	517	100	100	7/1 - 9/30 varies	Bears Paw to Breaks
6283	Williamson Bottom	479	32	479	32	100	7/1 - 9/30 varies	Bears Paw to Breaks
6284	Sturgeon Island	558	70	558	70	100	7/1 - 9/30 varies	Bears Paw to Breaks
6285	West Gist	312	56	312	56	100	7/1 - 9/30 varies	Bears Paw to Breaks
6434	Cabin			1825	429	20	6/1 - 12/07	Vimy

Allotment Number	Allotment Name	Allotment Totals				Percent Allotment in Monument	Grazing Season	Watershed Planning Area
		Acres	AUMs	Acres BLM Land	AUMs BLM Land			
North Side Allotments (Custodial Authorizations*)								
820	Sanford Pasture	701	72	701	72	100	3/1 - 2/28 (extended nonuse)	Bears Paw to Breaks
855	T26N R12E sc1	40	0	40	0	100	not allocated	Bears Paw to Breaks
864	T26N R12E Sec 4	29	0	29	0	100	not allocated	Bears Paw to Breaks
866	T27N R12E Sec 26	40	0	40	0	100	not allocated	Bears Paw to Breaks
867	T26N R12E Sec 5	40	0	40	0	100	not allocated	Bears Paw to Breaks
868	T26N R12E Sec 3	15	0	15	0	100	not allocated	Bears Paw to Breaks
905	Wood Property	2169	0	2169	0	100	not allocated for grazing	Vimy
912	T26N R12E Sec 11&12	30	0	30	0	100	not allocated	Bears Paw to Breaks
5611	Upper Cyprian Ck	3779	646	3779	646	65	custodial 3/1 - 2/28	Beauchamp
5629	Coal Mine Coulee	423	53	423	53	100	custodial 3/1 - 2/28	Beauchamp
6210	Maxwell	100	10	100	10	100	custodial 4/15 - 10/31	Bears Paw to Breaks
6220	Eight Mile Bench	818	89	818	89	80	custodial 5/1 - 11/30	Bears Paw to Breaks
6254	Lost Bird	40	6	40	6	100	custodial 3/1 - 2/28	Bears Paw to Breaks
6273	Bear Point	279	24	279	24	100	custodial 5/1 - 11/30	Bears Paw to Breaks
6420	Clinard Coulee	628	76	628	76	60	custodial 3/1 - 2/28	Bears Paw to Breaks
6422	N Hanging 5	444	52	444	52	90	custodial 3/1 - 2/28	Vimy
6424	Balzek	336	90	336	90	50	custodial 5/15 - 11/14	Bears Paw to Breaks
6425	Piedras	1002	54	1002	54	90	custodial 8/1 - 11/1	Bears Paw to Breaks
6426	White Rocks	186	42	186	42	100	custodial 6/1 - 10/31	Bears Paw to Breaks
6428	Osterman	200	42	200	42	50	custodial 5/1 - 12/31	Bears Paw to Breaks
6429	Puma	156	53	156	53	50	custodial 6/1 - 12/15	Bears Paw to Breaks
6481	Jurenka	130	7	130	7	100	custodial 7/1 - 9/30	Bears Paw to Breaks
16350	South Vimy	920	95	920	95	30	custodial 5/1 - 9/1	Vimy
South Side Allotments								
2000	Fink EUI	**	**	233	41	100	6/1 - 7/15	Armells
2013	W. Indian Butte	16542	1889	11490	1132	95	5/1 - 11/15	Armells
2018	Mayberry	7018	820	2933	393	50	5/1 - 11/1	Armells
2021	Lower Armells	3073	397	2631	327	100	6/1 - 12/1	Armells
2024	Sawmill Coulee	5436	856	3881	567	85	6/1 - 10/31	Armells
2038	Barnes Ridge	2403	283	1763	214	100	6/1 - 7/1, 10/1 - 10/31	Two Calf
2039	Two Calf	**	**	9223	1269	100	6/1 - 11/30	Two Calf
2040	Lower Fargo Coulee	**	**	1046	169	80	5/1 - 6/30, 11/15 - 2/28	Armells
2517	Woodcock Coulee	3545	514	918	112	25	5/1 - 10/30	AC/UR/WR***
9649	ABN	**	**	237	66	80	4/1 - 1/1	AC/UR/WR

Allotment Number	Allotment Name	Allotment Totals				Percent Allotment in Monument	Grazing Season	Watershed Planning Area
		Acres	AUMs	Acres BLM Land	AUMs BLM Land			
9687	Dammel	**	**	920	66	100	5/1 - 6/16, 3/1 - 2/28	Upper Missouri AC/UR/WR
9703	Melton Coulee	**	**	1503	157	100	3/1 - 2/28	AC/UR/WR
9707	Arrow Ck West	**	**	575	111	100	10/2 - 1/28	AC/UR/WR
9729	Kipps Rapids	**	**	820	104	100	6/15 - 10/8	Upper Missouri AC/UR/WR
9797	Evans Bend	**	**	1148	131	40	3/1 - 4/1, 8/1 - 2/28	AC/UR/WR
9799	Hole in the Wall	**	**	625	94	100	5/1 - 11/15	Upper Missouri
9808	Starve Out Flat	**	**	958	291	30	5/15 - 11/15	Upper Missouri
9826	Flat Ck	**	**	735	80	50	8/1 - 10/15	Upper Missouri
9838	White Rocks	6855	**	2365	329	60	5/1 - 12/1	Upper Missouri
9847	Slide Coulee	5167	860	3435	494	100	5/1 - 12/31	AC/UR/WR
9864	Grace Bench	**	**	246	31	5	10/1 - 11/30	AC/UR/WR
9866	Wilson Coulee	**	**	1207	210	60	4/1 - 12/30	AC/UR/WR
10041	Reservation Bench	**	**	2760	169	100	5/1 - 11/30	AC/UR/WR
15123	PN Sag	12151	2137	3637	563	100	6/1 - 10/15	Upper Missouri
15124	Dog Ck 20	8624	1145	7390	894	100	10/15 - 2/28	Upper Missouri
15125	Judith River	12068	1896	3099	424	95	3/1 - 2/28	Upper Missouri
15132	Whiskey Ridge	2941	453	2694	399	20	5/15 - 9/15	AC/UR/WR
19807	Churchill Butte	**	**	229	29	60	6/1 - 9/30, 4/1 - 12/30	AC/UR/WR
19837	Sheep Shed Coulee	6255	895	5901	697	40	7/10 - 11/29	Upper Missouri
20010	Blind Canyon AMP	6220	2574	2300	288	80	5/1 - 10/31	AC/UR/WR
20026	Demars	5474	456	5019	401	100	6/1 - 10/31, 3/1 - 2/28	Two Calf
20031	Woodhawk	**	**	25606	3120	70	5/1 - 10/31, 3/1 - 2/28	Woodhawk
20037	Armells	2854	620	1752	378	15	5/15 - 10/15	Armells
20039	Mutton Coulee	1600	327	880	179	100	6/6 - 10/1	AC/UR/WR
20040	Arrow Ck East	4212	**	1693	287	100	10/2 - 1/28	AC/UR/WR
20045	Mattuschek	**	**	7762	892	85	5/6 - 10/31, 3/1 - 2/28	Upper Missouri
20046	River	5424	629	4192	347	100	5/10 - 9/15	Upper Missouri
20066	Iron City Island	**	255	1088	193	100	6/1 - 9/30	Upper Missouri
20070	Upper Two Calf	**	2763	11324	1866	95	6/16 - 10/30, 3/1 - 2/28	Two Calf
20071	Reed Coulee	**	704	3614	577	70	5/1 - 10/31, 3/1 - 2/28	Two Calf
20075	Spring Coulee	2400	522	1639	358	100	6/10 - 10/20	AC/UR/WR
20078	Knox Ridge	**	**	11270	1629	95	5/16 - 12/15	Two Calf
20081	Stulc AMP	**	1010	4174	664	80	5/1 - 11/30, 3/1 - 2/28	AC/UR/WR

Allotment Number	Allotment Name	Allotment Totals				Percent Allotment in Monument	Grazing Season	Watershed Planning Area
		Acres	AUMs	Acres BLM Land	AUMs BLM Land			
Allotments (Custodial Authorizations*)								
2003	Cimrhakl	1642	270	1642	270	100	custodial 3/1 - 2/28	Armells
2015	Komarek Ranch	125	19	125	19	35	custodial 3/1 - 2/28	Armells
2016	Komarek Place	519	102	519	102	15	custodial 3/1 - 2/28	Armells
9662	Mud Springs Coulee	800	97	800	97	100	custodial 3/1 - 2/28	none
9664	Big View	124	11	124	11	35	custodial 3/1 - 2/28	AC/UR/WR
9681	Sherry Coulee	160	23	160	23	100	custodial 3/1 - 2/28	none
9683	Coffee Creek	2471	261	2471	261	75	custodial 3/1 - 2/28	AC/UR/WR
9693	Dostal	1630	190	1630	190	70	custodial 3/1 - 2/28	AC/UR/WR
9714	Rattlesnake Coulee	1174	172	1174	172	60	custodal 3/1 - 2/28	Upper Missouri
9761	Arrow Ck Bench	2079	153	2079	153	50	custodial 3/1 - 2/28	AC/UR/WR
9767	Rowe Coulee	450	108	450	108	10	custodal 3/1 - 2/28	AC/UR/WR
9778	Deadman Coulee	2942	263	2942	263	10	custodial 3/1 - 2/28	AC/UR/WR
9802	Ritland	40	7	40	7	5	custodal 3/1 - 2/28	AC/UR/WR
9825	B Lazy M	252	41	252	41	5	custodal 3/1 - 2/28	AC/UR/WR
20002	Evers Bench	60	12	60	12	100	custodial 3/1 - 2/28	AC/UR/WR
20012	79 Coulee	40	10	40	10	100	custodial 3/1 - 2/28	AC/UR/WR
20079	Seventy-Nine Coulee (Stulc)	792	180	792	180	50	custodial 3/1 - 2/28	AC/UR/WR

*Custodial authorizations are for the recognized capacity of the BLM land regardless of the private or other lands fenced in the same pasture.

**These allotments have multiple pastures, some of which are authorized on a custodial basis and some are for a combination of lands. Identifying total acreage and AUMs in this instance misrepresents the management unit.

***AC/UR/WR = Arrow Creek / Upper Missouri River / Whiskey Ridge

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UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

West Half Recreation Map

Map 1 - Side A

Draft

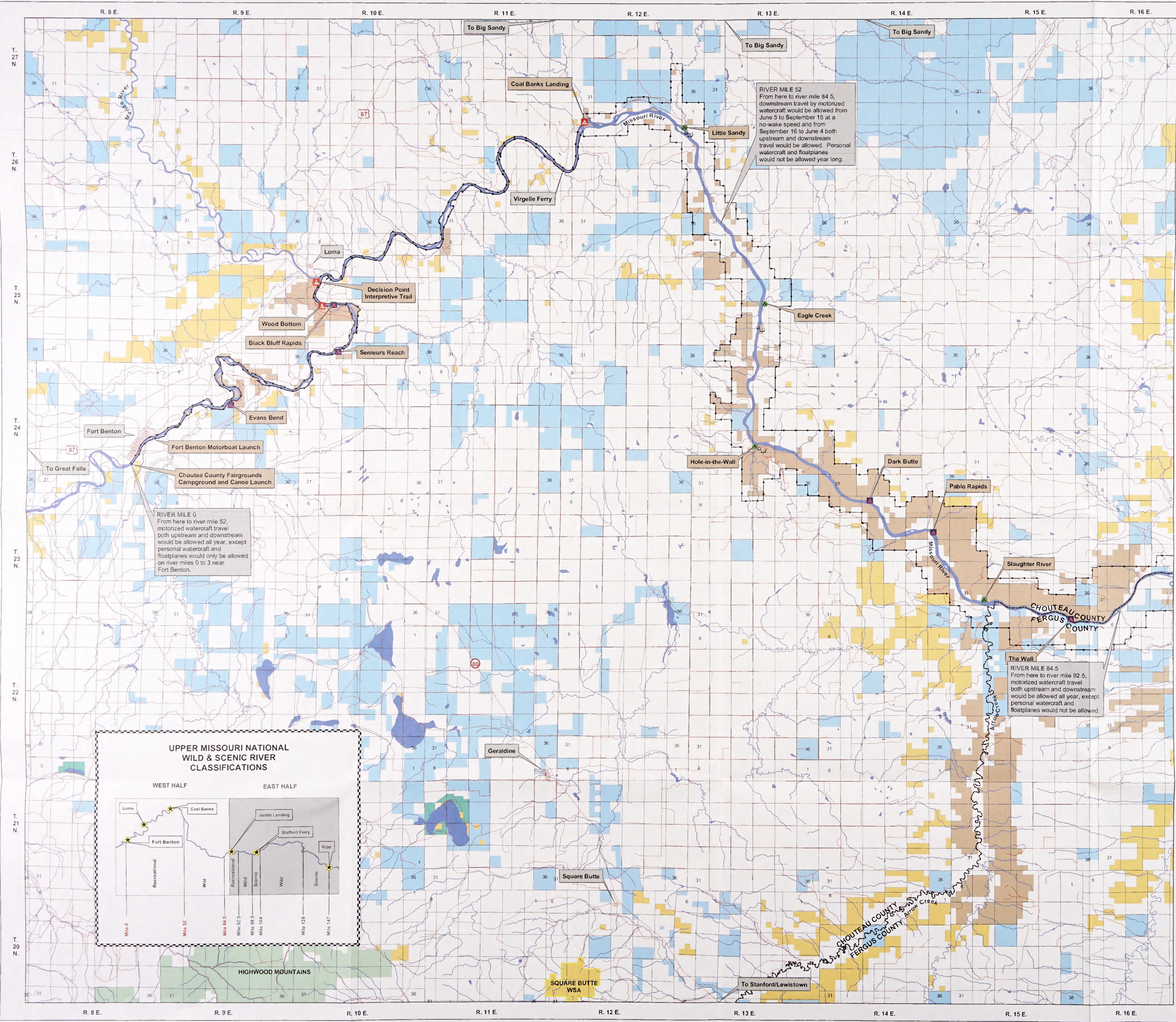


Allotment Number	Allotment Name	Allotment Totals				Percent Allotment in Monument	Grazing Season	Watershed Planning Area
		Acres	AUMs	Acres BLM Land	AUMs BLM Land			
Allotments (Custodial Authorizations*)								
2003	Cimrhaki	1642	270	1642	270	100	custodial 3/1 - 2/28	Armells
2015	Komarek Ranch	125	19	125	19	35	custodial 3/1 - 2/28	Armells
2016	Komarek Place	519	102	519	102	15	custodial 3/1 - 2/28	Armells
9662	Mud Springs Coulee	800	97	800	97	100	custodial 3/1 - 2/28	none
9664	Big View	124	11	124	11	35	custodial 3/1 - 2/28	AC/UR/WR
9681	Sherry Coulee	160	23	160	23	100	custodial 3/1 - 2/28	none
9683	Coffee Creek	2471	261	2471	261	75	custodial 3/1 - 2/28	AC/UR/WR
9693	Dostal	1630	190	1630	190	70	custodial 3/1 - 2/28	AC/UR/WR
9714	Rattlesnake Coulee	1174	172	1174	172	60	custodal 3/1 - 2/28	Upper Missouri
9761	Arrow Ck Bench	2079	153	2079	153	50	custodial 3/1 - 2/28	AC/UR/WR
9767	Rowe Coulee	450	108	450	108	10	custodal 3/1 - 2/28	AC/UR/WR
9778	Deadman Coulee	2942	263	2942	263	10	custodial 3/1 - 2/28	AC/UR/WR
9802	Ritland	40	7	40	7	5	custodal 3/1 - 2/28	AC/UR/WR
9825	B Lazy M	252	41	252	41	5	custodal 3/1 - 2/28	AC/UR/WR
20002	Evers Bench	60	12	60	12	100	custodial 3/1 - 2/28	AC/UR/WR
20012	79 Coulee	40	10	40	10	100	custodial 3/1 - 2/28	AC/UR/WR
20079	Seventy-Nine Coulee (Stulc)	792	180	792	180	50	custodial 3/1 - 2/28	AC/UR/WR

*Custodial authorizations are for the recognized capacity of the BLM land regardless of the private or other lands fenced in the same pasture.

**These allotments have multiple pastures, some of which are authorized on a custodial basis and some are for a combination of lands. Identifying total acreage and AUMs in this instance misrepresents the management unit.

***AC/UR/WR = Arrow Creek / Upper Missouri River / Whiskey Ridge



UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

West Half Recreation Map

Map 1 - Side A
Draft



Legend

- Wild & Scenic River Boundary
- Wilderness Study Area
- County Boundary
- SURFACE OWNERSHIP:**
 - National Monument (BLM)
 - Other BLM
 - U.S. Forest Service
 - U.S. Fish and Wildlife Service
 - State
 - Private
- The BLM has no jurisdiction over State or Private Land.
- Potential Geological Interpretive Sites

- Level 1 - Developed Public Access Sites
- Level 2 - Developed Upland Sites or Boat Camps
- Level 3 - Primitive Camp Sites or Boat Camps

Upland Recreation Facilities

Level 1 - Developed Public Access Sites. Recreation sites where a high level of infrastructure development could include campsites, parking lots, vault toilets, interpretive signs, campground host facilities, tree plantings, picnic tables, waste facilities and other infrastructure improvements that accommodate the transition from highway to collector roads. Sites would be marked on a map.

Level 2 - Developed Upland Sites. Campsites, trailheads, scenic overlooks and reservoirs where moderate levels of infrastructure development could include metal fire rings, vault toilets, and improved gravel parking areas. Interpretive signs and information boards may be present but would be much less obtrusive than at Level 1 sites and would blend well with natural surroundings. Sites would be marked on a map.

Level 3 - Primitive Campsites. Pull-out sites immediately adjacent to a resource road that could contain a fire ring and minimal signing, but no other infrastructure.

Level 4 - Dispersed camping opportunities. This would be the utilization of public land in a natural state for dispersed, undeveloped camping. These areas may be accessible by motorized or non-motorized travel. There would be no infrastructure in these areas.

River Recreation Facilities

Level 1 - Developed public access sites. These sites are accessible by road with a full range of developments that could include parking lots, boat ramps, vault toilets, campsites for tents and RVs and picnic facilities.

Level 2 - Developed boat camps. These sites are accessible to the public only by boat. The sites could include vault toilets, metal fire rings and occasionally open-air shelters.

Level 3 - Primitive boat camps. These sites are accessible only by boat and could contain a metal fire ring. There are no other developments.

Level 4 - Dispersed camping opportunities. In addition to the developed sites described above, camping is permissible on any of the 90,000 acres of BLM land adjacent to the river. Absence of development allows opportunities for those seeking a completely primitive experience.

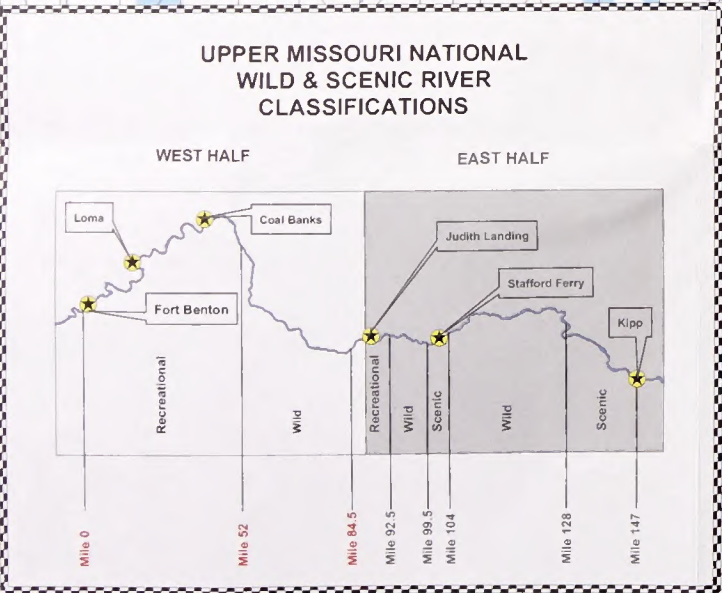
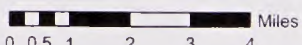


Disclaimer

Base data derived from USGS digital and mylar 1:100,000 scale maps. No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

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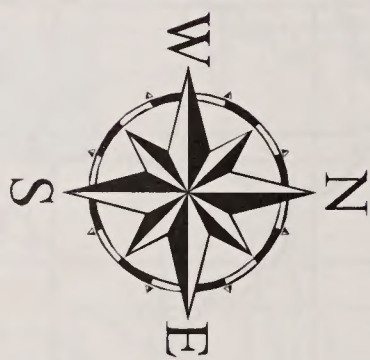
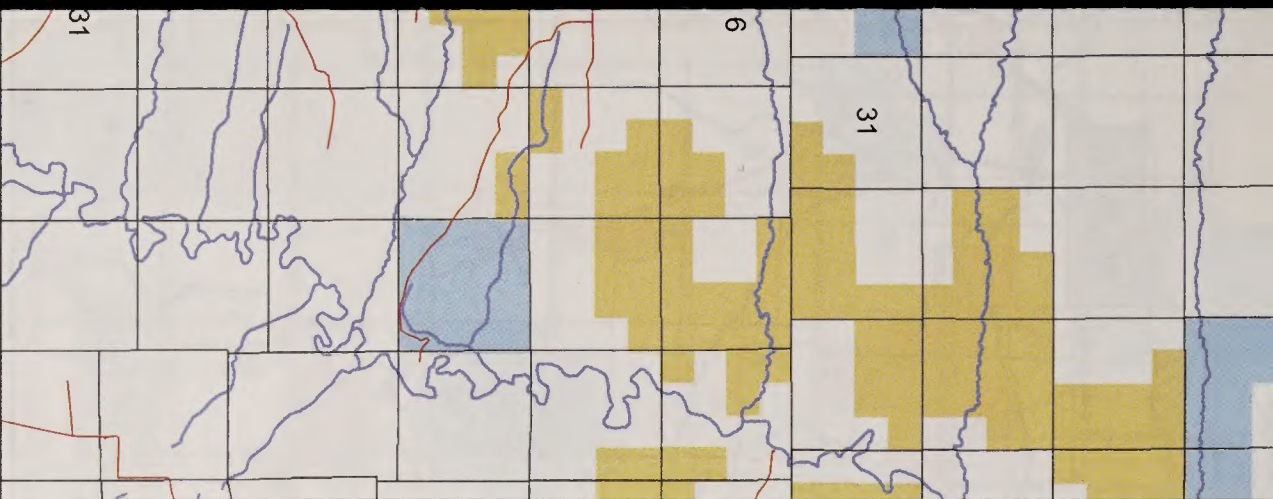
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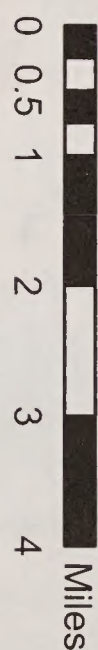
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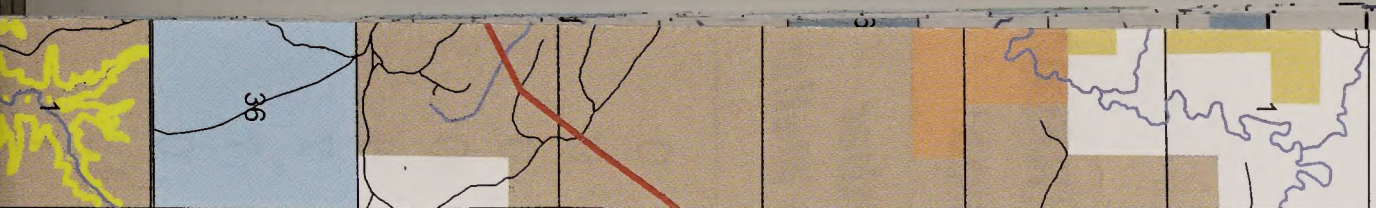
UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

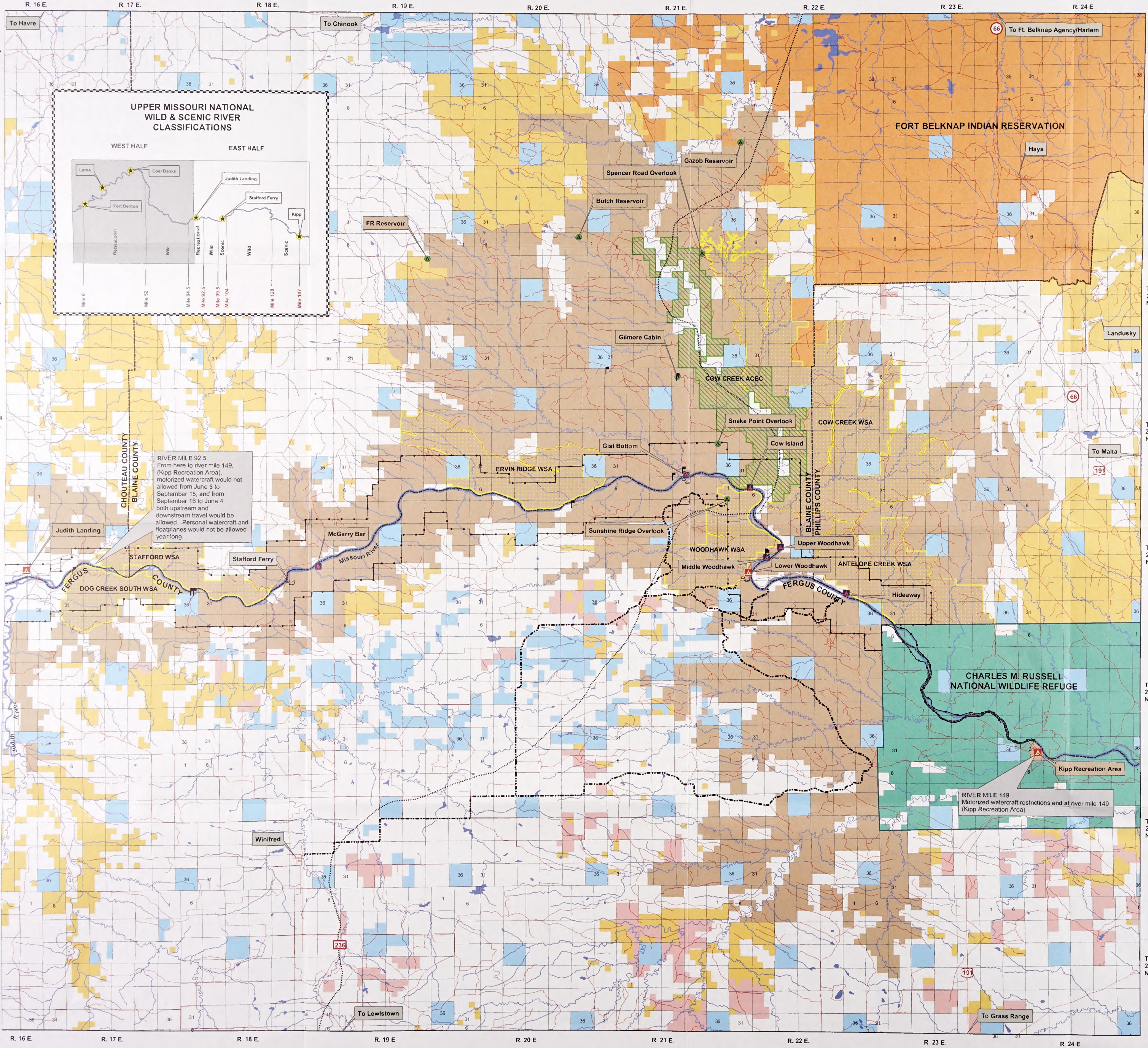
Oil and Gas Map

Map 2 - Side A
Draft



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UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

East Half Recreation Map

Map 1 - Side B
Draft



Legend

- Wild & Scenic River Boundary
- Area of Critical Environmental Concern
- Wilderness Study Area
- County Boundary

SURFACE OWNERSHIP:

- National Monument (BLM)
- Other BLM
- Indian Land or Reservation
- U.S. Fish and Wildlife Service
- State
- Private

The BLM has no jurisdiction over State or Private Land.

- Missouri Breaks Back Country Byway
- Nez Perce Trail
- Potential Cultural Interpretive Sites
- Potential Geological Interpretive Sites

- Level 1 - Developed Public Access Sites
- Level 2 - Developed Upland Sites or Boat Camps
- Level 3 - Primitive Camp Sites or Boat Camps

Upland Recreation Facilities

Level 1 - Developed Public Access Sites. Recreation sites where a high level of infrastructure development could include campsites, parking lots, vault toilets, interpretive signs, campground host facilities, tree plantings, picnic tables, waste facilities and other infrastructure improvements that accommodate the transition from highway to collector roads. Sites would be marked on a map.

Level 2 - Developed Upland Sites. Campsites, trailheads, scenic overlooks and reservoirs where moderate levels of infrastructure development could include metal fire rings, vault toilets, and improved gravel parking areas. Interpretive signs and information boards may be present but would be much less obtrusive than at Level 1 sites and would blend well with natural surroundings. Sites would be marked on a map.

Level 3 - Primitive Campsites. Pull-out sites immediately adjacent to a resource road that could contain a fire ring and minimal signing, but no other infrastructure.

Level 4 - Dispersed camping opportunities. This would be the utilization of public land in a natural state for dispersed, undeveloped camping. These areas may be accessible by motorized or non-motorized travel. There would be no infrastructure in these areas.

River Recreation Facilities

Level 1 - Developed public access sites. These sites are accessible by road with a full range of developments that could include parking lots, boat ramps, vault toilets, campsites for tents and RV's and picnic facilities.

Level 2 - Developed boat camps. These sites are accessible to the public only by boat. The sites could include vault toilets, metal fire rings and occasionally open-air shelters.

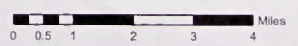
Level 3 - Primitive boat camps. These sites are accessible only by boat and could contain a metal fire ring. There are no other developments.

Level 4 - Dispersed camping opportunities. In addition to the developed sites described above, camping is permissible on any of the 90,000 acres of BLM land adjacent to the river. Absence of development allows opportunities for those seeking a completely primitive experience.



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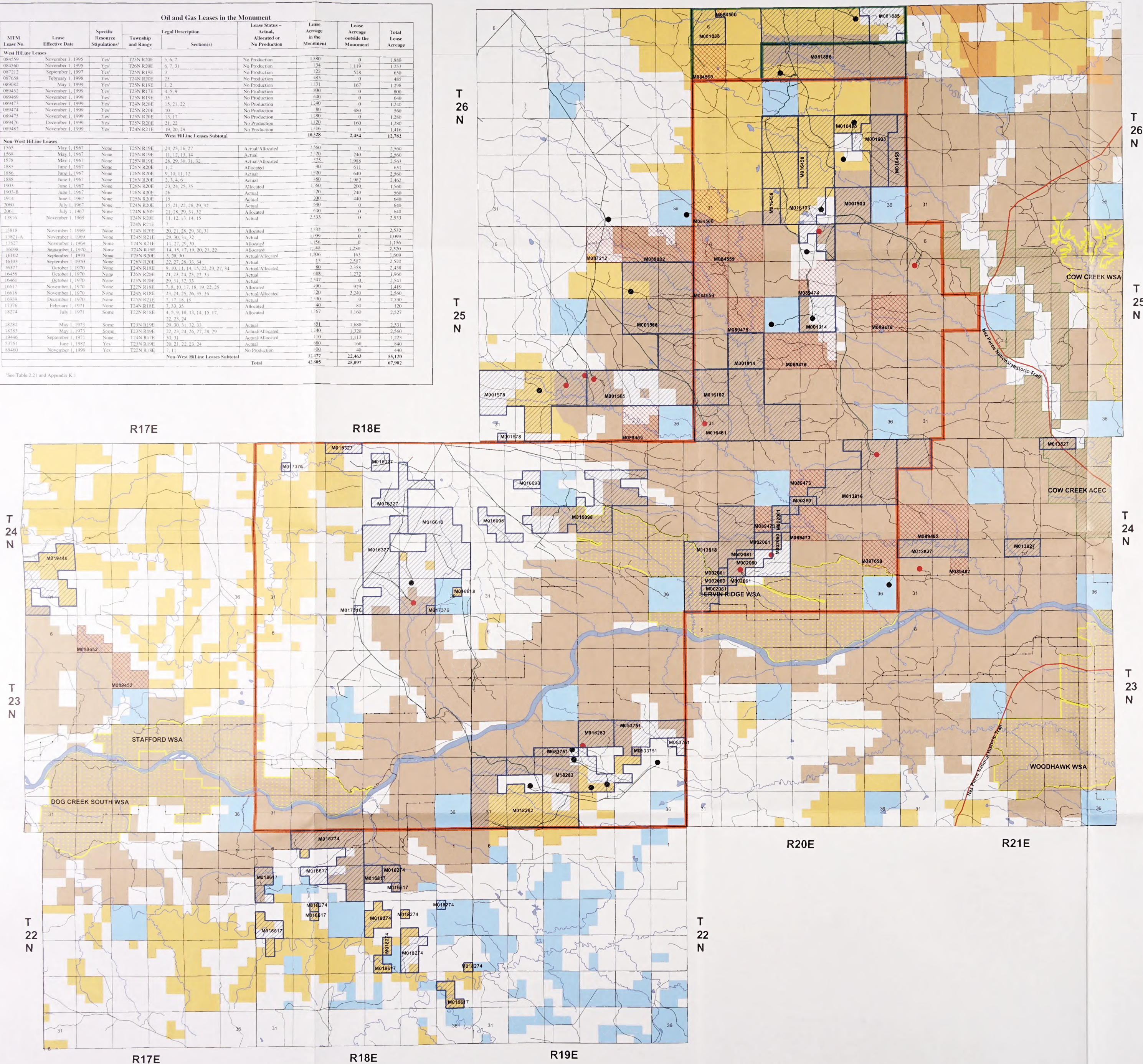
UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

Oil and Gas Map Map 2 - Side A Draft



Oil and Gas Leases in the Monument									
MTM Lease No.	Lease Effective Date	Specific Resource Stipulations ¹	Township and Range	Legal Description	Lease Status - Actual, Allocated or No Production	Lease Acreage in the Monument	Lease Acreage outside the Monument	Total Lease Acreage	
West HiLine Leases									
084559	November 1, 1995	Yes	T25N R20E	5, 6, 7	No Production	1,580	0	1,580	
084560	November 1, 1995	Yes	T26N R20E	6, 7, 31	No Production	134	1,119	1,253	
087212	September 1, 1997	Yes	T25N R19E	3	No Production	32	528	660	
087658	February 1, 1998	Yes	T24N R20E	25	No Production	485	0	485	
089082	May 1, 1999	Yes	T25N R19E	1, 2	No Production	1,331	167	1,498	
089452	November 1, 1999	Yes	T25N R17E	4, 5, 9	No Production	380	0	380	
089469	November 1, 1999	Yes	T25N R19E	15	No Production	640	0	640	
089473	November 1, 1999	Yes	T24N R20E	15, 21, 22	No Production	1,240	0	1,240	
089474	November 1, 1999	Yes	T25N R20E	10	No Production	80	480	560	
089475	November 1, 1999	Yes	T25N R20E	13, 17	No Production	1,280	0	1,280	
089476	December 1, 1999	Yes	T25N R20E	21, 22	No Production	1,120	160	1,280	
089482	November 1, 1999	Yes	T24N R21E	19, 20, 29	No Production	1,416	0	1,416	
West HiLine Leases Subtotal						10,528	2,454	12,982	
Non-West HiLine Leases									
1565	May 1, 1967	None	T25N R19E	24, 25, 26, 27	Actual/Allocated	2,560	0	2,560	
1568	May 1, 1967	None	T25N R19E	11, 12, 13, 14	Actual	2,520	240	2,760	
1578	May 1, 1967	None	T25N R19E	28, 29, 30, 31, 32	Actual/Allocated	2,520	1,988	4,508	
1585	June 1, 1967	None	T26N R20E	1, 2	Allocated	40	611	651	
1586	June 1, 1967	None	T26N R20E	9, 10, 11, 12	Actual	1,920	640	2,560	
1588	June 1, 1967	None	T26N R20E	2, 3, 4, 6	Actual	480	1,982	2,462	
1903	June 1, 1967	None	T26N R20E	23, 24, 25, 35	Allocated	1,760	200	1,960	
1903-B	June 1, 1967	None	T26N R20E	26	Actual	20	240	260	
1914	June 1, 1967	None	T25N R20E	15	Actual	20	440	460	
2060	July 1, 1967	None	T24N R20E	15, 21, 22, 28, 29, 32	Actual	640	0	640	
2061	July 1, 1967	None	T24N R20E	21, 28, 29, 31, 32	Allocated	640	0	640	
15816	November 1, 1969	None	T24N R20E	11, 12, 13, 14, 15	Actual	2,533	0	2,533	
15818	November 1, 1969	None	T24N R20E	20, 21, 28, 29, 30, 31	Allocated	2,532	0	2,532	
15821-A	November 1, 1969	None	T24N R21E	29, 30, 31, 32	Actual	1,099	0	1,099	
15817	November 1, 1969	None	T24N R21E	11, 27, 29, 30	Allocated	1,156	0	1,156	
16068	September 1, 1970	None	T24N R20E	14, 15, 17, 19, 20, 21, 22	Allocated	1,180	1,280	2,520	
16102	September 1, 1970	None	T25N R20E	3, 20, 40	Actual/Allocated	1,506	163	1,669	
16103	September 1, 1970	None	T26N R20E	22, 27, 28, 33, 34	Actual	13	2,507	2,520	
16527	October 1, 1970	None	T24N R18E	9, 10, 11, 14, 15, 22, 23, 27, 34	Actual/Allocated	80	2,358	2,438	
16458	October 1, 1970	None	T26N R20E	21, 23, 24, 25, 27, 33	Actual	688	1,222	1,960	
16461	October 1, 1970	None	T25N R20E	29, 31, 32, 33	Actual	2,547	0	2,547	
16617	November 1, 1970	None	T22N R18E	7, 8, 10, 17, 18, 19, 22, 25	Allocated	400	929	1,419	
16618	November 1, 1970	None	T24N R18E	23, 24, 25, 26, 35, 36	Actual/Allocated	320	2,240	2,560	
16939	December 1, 1970	None	T25N R21E	7, 17, 18, 19	Actual	2,530	0	2,530	
17376	February 1, 1971	None	T24N R18E	7, 33, 35	Allocated	40	80	120	
18274	July 1, 1971	None	T22N R18E	4, 5, 9, 10, 13, 14, 15, 17, 22, 23, 24	Allocated	1,367	1,160	2,527	
18282	May 1, 1973	Some	T23N R19E	29, 30, 31, 32, 33	Actual	851	1,680	2,531	
18283	May 1, 1973	Some	T23N R19E	22, 23, 24, 26, 27, 28, 29	Actual/Allocated	1,240	1,320	2,560	
19446	September 1, 1971	None	T24N R17E	30, 31	Actual/Allocated	110	1,113	1,223	
53751	June 1, 1982	Yes	T24N R19E	20, 21, 22, 23, 24	Actual	680	160	840	
89460	November 1, 1999	Yes	T22N R18E	7, 11	No Production	40	40	80	
Non-West HiLine Leases Subtotal						32,477	22,463	54,940	
Total						42,905	25,097	67,902	

See Table 2.21 and Appendix K.

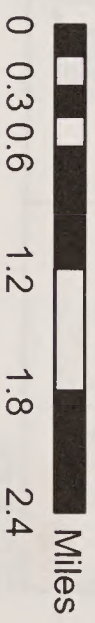
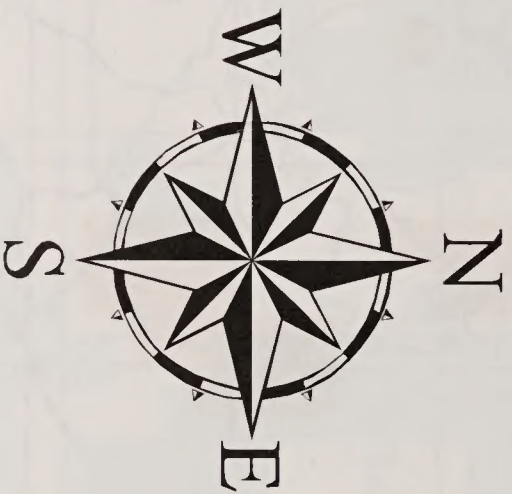


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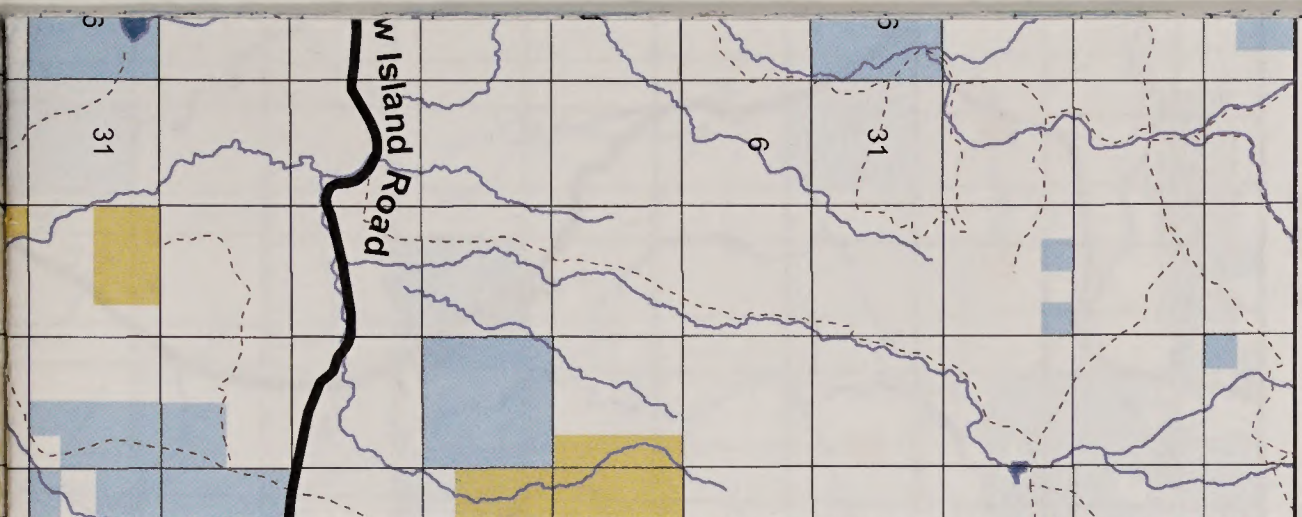
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R. 16 E.



T. 27
N.

T. 26
N.

UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

West Base Transportation Map

Map 3 - Alternative F - Side A
Draft



UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

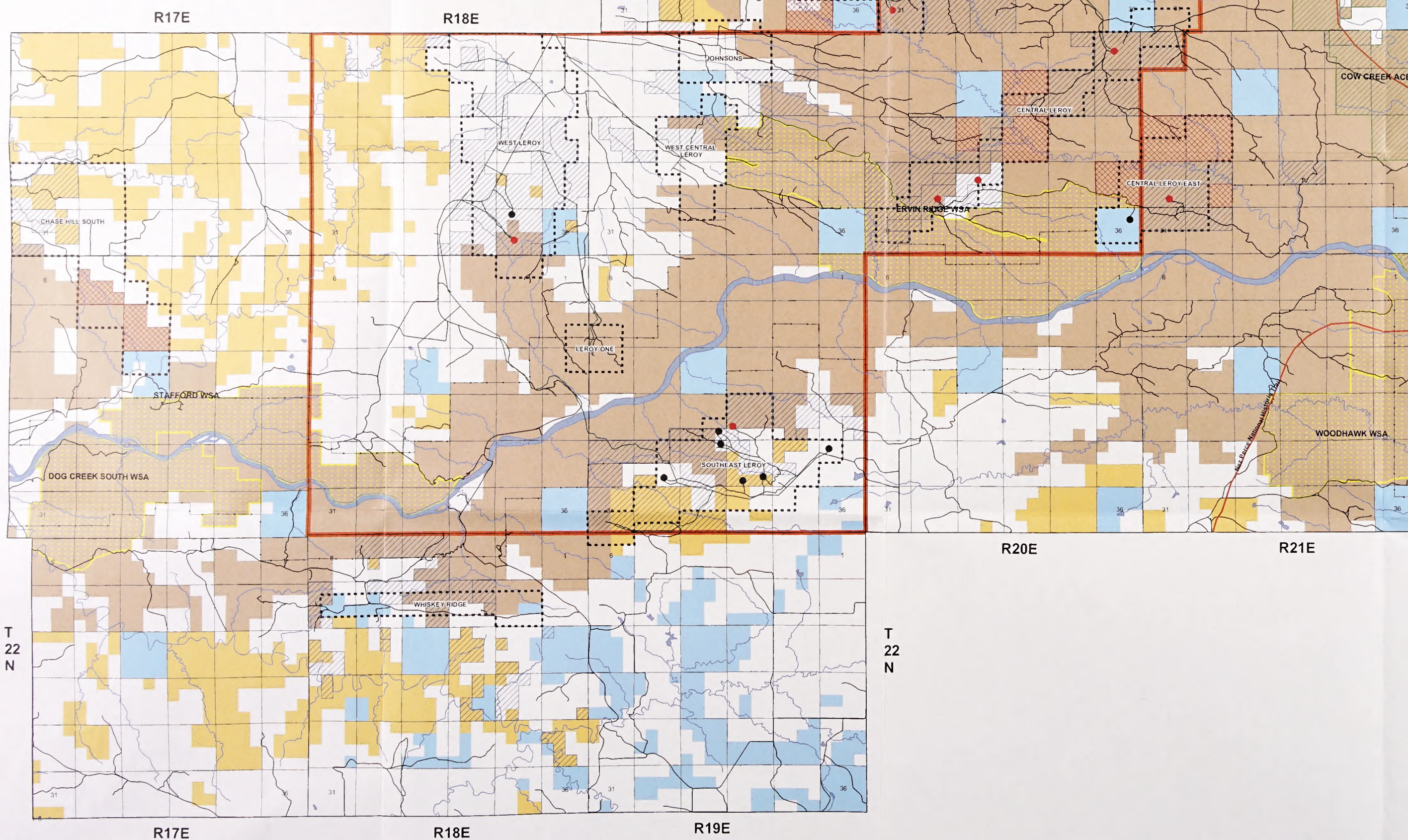
Reasonable Foreseeable Development Map 2 - Side B Draft



Reasonable Foreseeable Development (RFD) Wells by Exploration/Development Area ¹			
Exploration/Development Area	Monument RFD Wells	Other RFD Wells ²	Total Other
Central Leroy	6	0	6
Central Leroy East	3	0	3
Chase Hill South	2	0	2
Leroy Bullwacker	6	0	6
North Leroy	1	4	5
Sherard Northwest Leroy	8	7	15
Sherard Unit	5	1	6
Sherard Unit Area East	10	0	10
Sawtooth	4	13	17
Southeast Leroy	1	1	2
West Leroy	0	1	1
Total Wells in the 11 Areas	46	27	73

¹Prior to considering any resource stipulations or condition of approval

²RFD wells within 1/2 mile of the Monument



Legend

- Wild & Scenic River Boundary
- Area of Critical Environmental Concern
- Wilderness Study Area
- National Historic Trail

Surface Ownership:

- National Monument (BLM)
- Other BLM
- Indian Land or Reservation
- State
- Private

The BLM has no jurisdiction over State or Private Land.

Natural Gas Exploration and Development

- Sawtooth Mountain Gas Field
- Leroy Gas Field
- Natural Gas Pipeline
- Active Wells in the Monument
- Active Wells 1/2 mile outside the Monument
- West HiLine Leases
- Non-West HiLine Leases
- Exploration/Development Areas

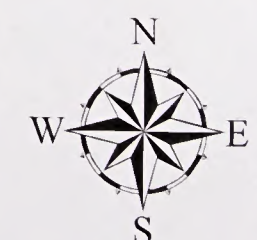


Disclaimer

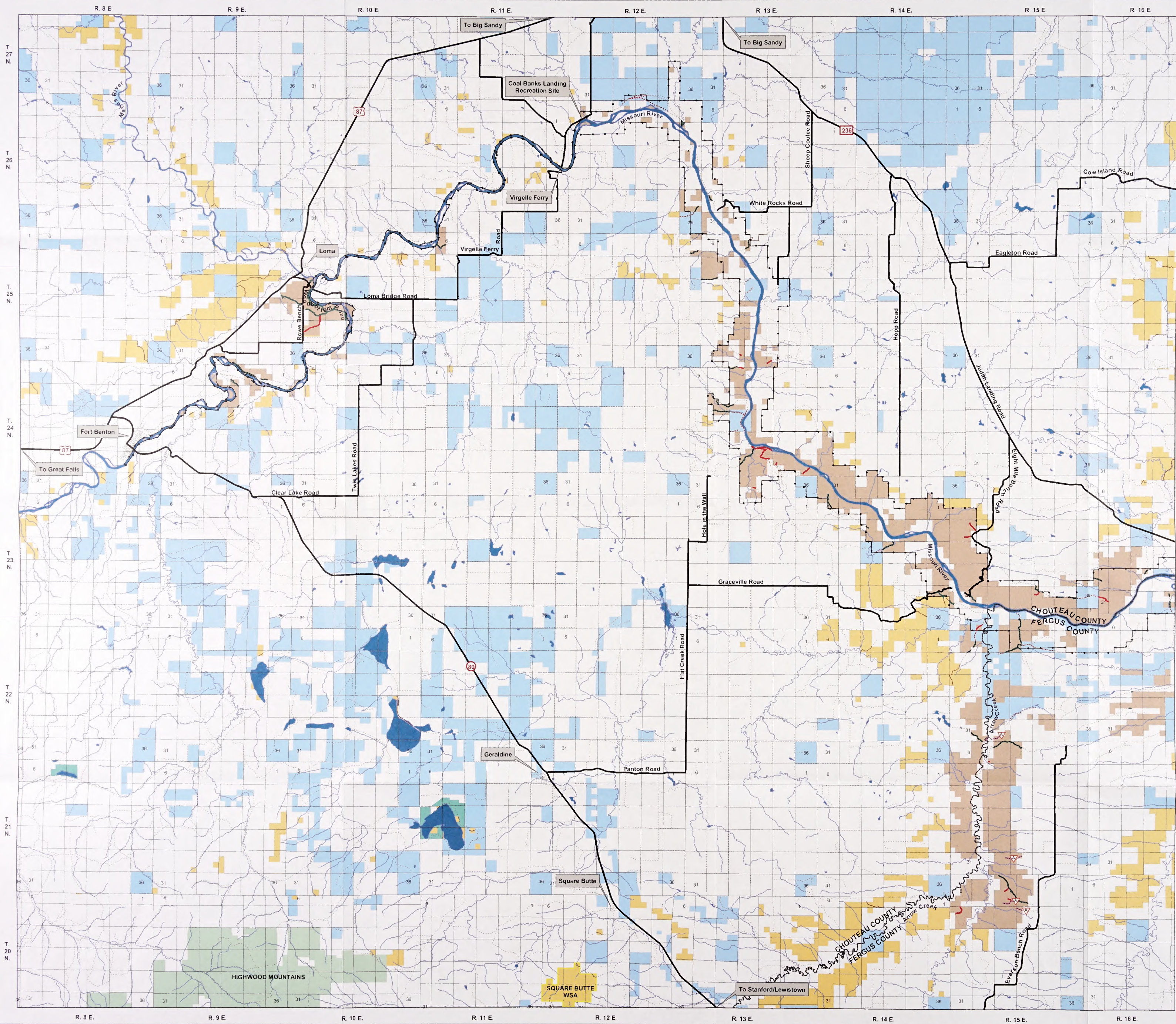
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0 0.4 0.8 1.6 2.4 3.2 Miles



UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

West Base Transportation Map

Map 3 - Alternative F - Side A
Draft



Legend

- Wild & Scenic River Boundary
- Area of Critical Environmental Concern
- Wilderness Study Area
- County Boundary

Surface Ownership

- National Monument (BLM)
- Other BLM
- Indian Land or Reservation
- U.S. Fish and Wildlife Service
- State
- Private

The BLM has no jurisdiction over State or Private Land.

Transportation

- County Roads, Highways, and CMR National Refuge Roads or Other Main Public Roads
- Open State Land Roads
- Closed State Land Roads
- Backcountry Airstrips

BLM Road System

- Open BLM Roads
- Closed BLM Roads
- Limited BLM Roads

Landowner Permission may be Required for Access to BLM Roads

Limited BLM Road Designations

- Open April 1 to November 30 (Closed December 1 to March 31 - Big Game Winter Range)
- Open December 1 to August 31 (Closed September 1 to November 30 - Wildlife Habitat Security: Game Retrieval Allowed from 10:00 a.m. to 2:00 p.m.)
- Open June 16 to March 31 (Closed April 1 to June 15 - Bighorn Sheep Lambing)
- Open April 1 to November 30 (Closed December 1 to March 31 - Sage-Grouse Winter Habitat)
- Open June 16 to August 31 & December 1 to March 31 (Closed April 1 to June 15 - Bighorn Sheep Lambing and Closed September 1 to November 30 - Wildlife Habitat Security: Game Retrieval Allowed from 10:00 a.m. to 2:00 p.m.)
- Open April 1 to August 31 (Closed September 1 to November 30 - Wildlife Habitat Security: Game Retrieval Allowed from 10:00 a.m. to 2:00 p.m. and Closed December 1 to March 31 - Big Game Winter Range)

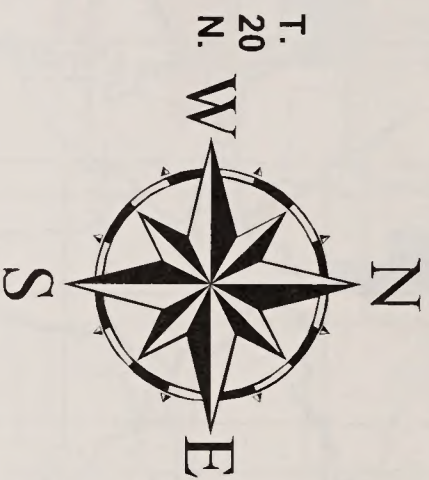
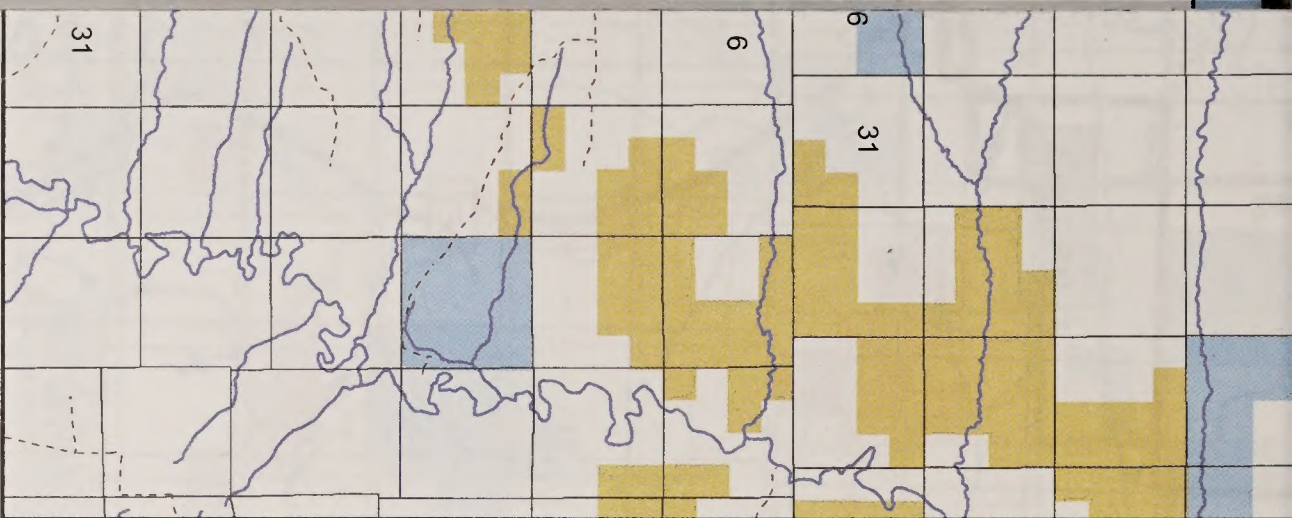
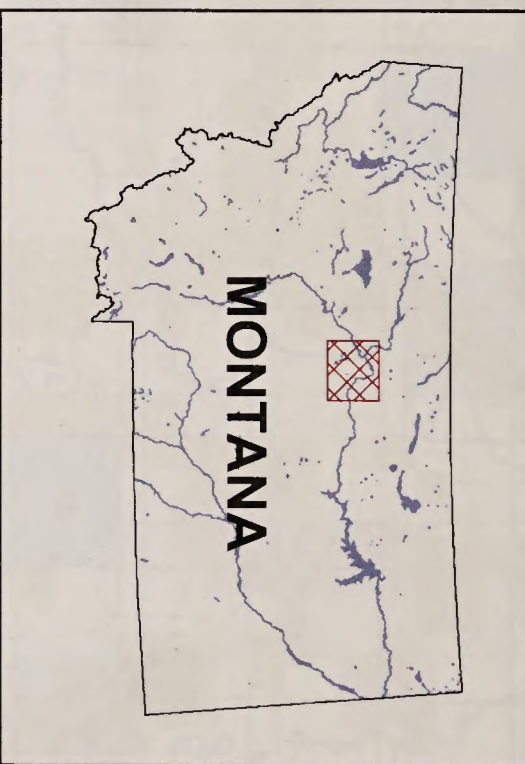


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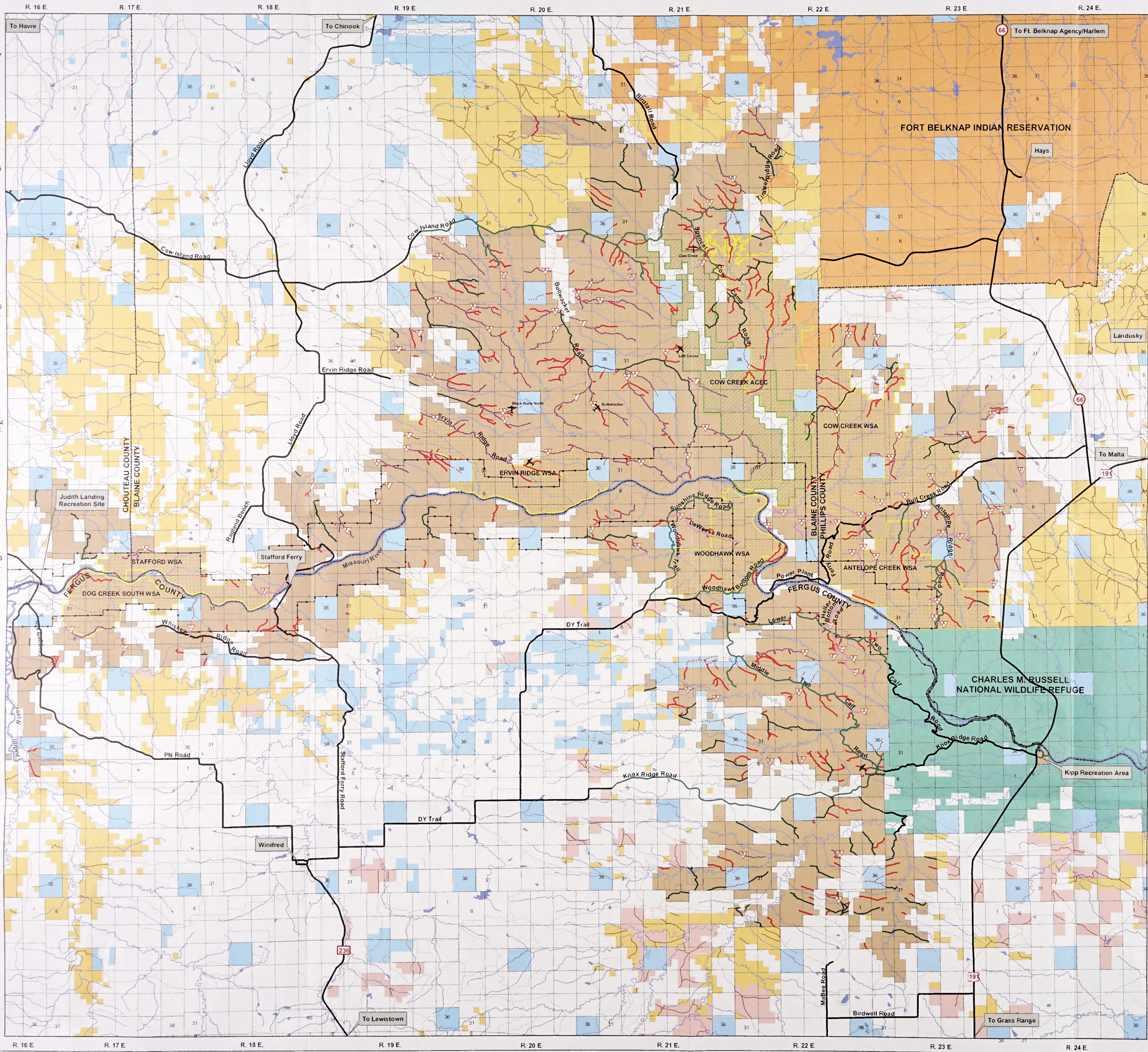
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UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT

East Half Transportation Map

Map 3 - Alternative F - Side B
Draft



Legend

- Wild & Scenic River Boundary
- Area of Critical Environmental Concern
- Wilderness Study Area
- County Boundary

Surface Ownership

- National Monument (BLM)
- Other BLM
- Indian Land or Reservation
- U.S. Fish and Wildlife Service
- State
- Private

The BLM has no jurisdiction over State or Private Land.

County Roads, Highways, and CMR National Refuge Roads or Other Main Public Roads

Open State Land Roads

Closed State Land Roads

Backcountry Airstrips

BLM Road System

- Open BLM Roads
- Closed BLM Roads
- Limited BLM Roads

"Landowner Permission may be Required for Access to BLM Roads"

Limited BLM Road Designations

- Open April 1 to November 30 (Closed December 1 to March 31 - Big Game Winter Range)
- Open December 1 to August 31 (Closed September 1 to November 30 - Wildlife Habitat Security: Game Retrieval Allowed from 10:00 a.m. to 2:00 p.m.)
- Open June 16 to March 31 (Closed April 1 to June 15 - Bighorn Sheep Lambing)
- Open April 1 to November 30 (Closed December 1 to March 31 - Sage-Grouse Winter Habitat)
- Open June 16 to August 31 & December 1 to March 31 (Closed April 1 to June 15 - Bighorn Sheep Lambing and Closed September 1 to November 30 - Wildlife Habitat Security: Game Retrieval Allowed from 10:00 a.m. to 2:00 p.m.)
- Open April 1 to August 31 (Closed September 1 to November 30 - Wildlife Habitat Security: Game Retrieval Allowed from 10:00 a.m. to 2:00 p.m. and Closed December 1 to March 31 - Big Game Winter Range)



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0 0.5 1 2 3 4 Miles



